The Builder.

No. CXXIII.

SATURDAY, JUNE 14, 1845.

OUR readers will remember that in October last a cotton mill at Oldham, in Lancashire, fell, destroyed twenty persons, and injured many others.* Sir Henry De la Beche and Mr. Thomas Cubitt were appointed commissioners, by her Majesty's command, to collect evidence respecting its fall, and "to investigate into the causes connected with the structure of that building, or of certain parts thereof, which led" to the loss of life on that occasion. An inquiry into the circumstances which occasioned the failure of a part of the prison at Northleach, in Gloucester, was also referred to them. After examining the premises, and hearing such witnesses as were likely to afford the required information, they, at the end of February last, reported their proceedings and the results of their investigations.

This report is now before us: it contains some very valuable information, especially as to the strength of cast-iron beams, and some suggestions by Mr. Cubitt which should be acted on forthwith. In addition to parties connected with the buildings in question, they examined Mr. Fairbairn, Mr. Eaton Hodgkinson, and others, who have given attention to the forms of beams and the nature of iron, and have printed the minutes of evidence: the commissioners have further appended the results of a number of experiments made at Thames Bank, to shew the comparative strength of iron beams of different forms, already referred to in our pages.†

"It would appear that the Messrs. Radcliffe, who carry on an extensive business, had considered it expedient to add to their mill or factory, and for this purpose had undertaken the erection of two new buildings upon the principle termed fire-proof; that is, so combining iron, commonly cast-iron, with bricks or stone, as to exclude, or nearly exclude, wood in their erection, thereby rendering the building, as such, incapable of being consumed by fire. One of these buildings was erected over the space or area occupied by the boilers of the steam-engine, adjoining the old portion of the mill; the other, of larger dimensions, was, and is, to a certain extent separated from it.

At the latter end of October last the building over the boilers was completed, one 27½ feet high, including the roof, 77 feet long, and 41 feet wide. The other building, of larger dimensions, being unfinished, as it now is, though in a more advanced state than at that time. Prior to the former addition to the mill, the boilers, six in number, were covered by a fire-proof floor, formed of brick arches resting on cast-iron beams, the whole supported by the walls and cast-iron columns; and above this fire-proof floor there was a clear story, roofed with wood. This portion of the building had been erected eight years since by Mr. John Milnes, iron-founder, of Oldham.

When it was thought desirable to form an addition to the factory in this direction, enlarging that part of the old mill, the roof above noticed was removed, and the new work was carried up based upon the old (15 feet high). The same plan with respect to the arrangement of beams and arches was followed in the new floors, five in number, as in the old floors, the beams being, however, of less weight in the new work than in the old. Thus the building was a compound of work executed eight years since with that commenced in May last, the foundations and 15 feet of the height above the ground being of the former date."

"It was stated that the beams were all proved, that is, subjected to pressure to ascertain their strength, the pressure being usually beyond the weight which it is calculated that they would have to support, in accordance with the stipulation made with the founders, Messrs. Sevelles and Woolstanholme, by the Messrs. Radcliffe. The proof required was a load upon the centre of each beam, 14 feet long, equal to eight tons. The proof actually given is stated to have been equal to 9½ tons. John Swailes, joiner, in the employ of the Messrs. Radcliffe, and who made the patterns for the beams, deposes to have seen about twenty beams proved, a weight of 9½ tons being, he was informed at the time, applied to the centre of each. The same witness also states that he saw many of the beams cast, and that several were removed red-hot from the sand.

When not resting on the walls, where they were laid upon large stones, the beams were supported by cast-iron columns, cylindrical and hollow, 6 inches in diameter externally, and varying in weight from about 6 cwt. each in the lower floor, to about 5 cwt. each in the upper floors, those in the former having a core or hollow 4 inches in diameter, thus giving a thickness of 1 inch of metal; those in the latter, a core of 4½ inches, making three-quarters of an inch in metal. The upper columns, fitted by a projecting portion of their lower ends, into a corresponding socket in the highest part of those beneath them, and the beams were fastened to the columns by clips of wrought iron, secured red-hot over ears or projections at the extremities of the beams. The columns in the lowest floor rested upon iron plates, and these upon brickwork. The ties or rods connecting the beams together were about 4½ feet apart on the average, of wrought Staffordshire iron, seven-eighths of an inch square, and passed through the upper part of the beams, within about 1½ inch from the top.

The walls of the building were of the same thickness from the bottom to the top, 2½ feet thick for the side walls, and 2 feet thick at the end walls, and were constructed with bricks, sound and good. Two tiers of bond timber, 4½ inches by 3 inches, passed through the centre of the windows on each floor, and they were laid upon the same course, 4½ inches from both the outside and inside of the walls.

The arches of the different floors were of bricks, built with mortar made with Derbyshire lime; they rose in a span from 10½ feet to 11½ feet, and formed a regular segment of a circle. The upper course of bricks was wedged in tight with pieces of Welsh slate, and the whole was paved with flagging, about 1½ inch thick."

Such was the general construction and arrangement of the building, when one of the arches in the upper floor was observed to have settled about 4 inches, and workmen were employed to take it out, and replace it. While this was in operation one of the beams broke close to a column (from the lateral thrust of the adjoining arch as it is considered), and the whole building was almost instantaneously destroyed.

Witnesses were of opinion that this breakage of the beam, though sufficient to cause much damage, did not properly account for the total destruction of the building which ensued: they considered there was not sufficient strength in the beams generally.

"They also advert to the injudicious position of the tie rods which, though sufficient in number and strength, were situated too high up for resisting the strain of the arch. To resist that strain, they point out that the maximum effect would be produced by their attachment to the bottom flange of the beam, but that being inconvenient, they recommend that the ties should not be placed higher than the soffet of the arch, where they would perforate the neutral axis of the beam, that is, where, from vertical pressure, the tendency of the lower part of the beam to be disrupted and opened out is balanced by the opposite tendency on the upper part of the beam to be crushed inwards, thus affording sufficient security to the arch without injury to the strength of the beam.

Though they observed imperfections in the cast-iron columns, arising from the variable thickness of the metal, they were satisfied with them in other respects, at the same time stating their opinion that one inch more in diameter, with the same weight of metal, would have afforded greater strength and security."

The iron, on examination of fragments of the beams, was found to be of fair average quality, but the central parts were more highly crystallized than the internal parts, which led to the inference that the former had cooled more quickly than the latter; cracks were also observed, due to the same cause.

"In the evidence of John Swailes it is stated, that several of the beams employed in the portion of the factory which fell were taken out red hot from the sand in which they were cast, a sufficient reason for the appearances we have noticed, more especially, when it is considered that the parts of the beams were of variable thickness, not only the upper and lower flanges differing in this respect, but also the vertical portion connecting them. Under an equal temperature such parts would tend to become solid at variable times, the thinnest parts first, and even under the favourable circumstances of protracted cooling there would still be a disposition in the particles to adjust themselves unequally, producing unequal strains, and an absence of uniform structure in the mass. A fact well known to iron-founders, who from it, endeavour to arrange their castings, so as to obtain as much as possible a uniformity of thickness in the different parts.

The practice of removing beams of cast-iron, to be employed in sustaining weights, red hot from the sand, is very properly reprobated in the evidence of Messrs. Fairbairn and Whitworth. The former observes,—

'From my own experience, I am satisfied that fire-proof beams should never remain less than ten hours in the sand after they are cast; and for heavy castings thirty or forty hours, or more, are somtimes necessary to assist nature in a perfect, and, consequently, a strong and compact process of crystallization.'

We consider that even good cast-iron may be rendered comparatively brittle by sudden cooling, judging from what is known on the subject of the cooling of many substances, the more sudden application of cold to a substance in igneous fusion, producing the brittle quality, exemplified in the various glasses, more moderate cooling furnishing compactness, while more protracted refrigeration causes, in many bodies, crystallization, which may become of such an order from the occurrence of large crystalline planes, as to render fracture more easy in the line of such planes, being those of least resistance than in the intermediate state productive of compactness.

Unfortunately, it is considered a saving, particularly in small founderies, to remove castings red hot from the sand. Mr. Whitworth points out that not only is room acquired where it is so needed, in such founderies by this practice, but that a saving also is effected in the sand employed, which becomes burnt and destroyed near the castings while the latter are annealed in the cooling.

From at least several of the beams employed in the building which fell being, as stated by John Swailes, taken out red hot from the sand when cast, from the cracks and other corroborative proofs of rapid cooling observed by ourselves, and from having seen a beam cracked through the vertical portion connecting the upper and lower flanges, in the lower part of the larger fire-proof building now finishing, and in connection with the works of the Messrs. Radcliffe, this crack, or fissure, precisely of the kind that would be formed from an unequal tension of the thicker and thinner parts of the beam, more especially, if taken from the sand red hot and thus suddenly cooled; we are disposed to believe that such rents or cracks may have occurred in many other beams."

Considering the evidence correct, the commissioners believe that the lateral pressure of each of the arches successively fractured the adjacent beams.

"This happening on the upper floor, there is little difficulty in conceiving that the mass of bricks and iron thus suddenly thrown upon the floor beneath would crush it, and this

* See BUILDER, Vol. II. p. 563.
† See p. 49 *ante*.

again falling on the third, and so on, the accumulation of falling matter would be such from floor to floor, that after the failure of the upper floor, that in which the arch was under repair, the whole would appear to fall almost instantaneously, or in one great crash."

They therefore regard the failure of the arch in the upper floor, for which no apparent reason is assigned, as the primary cause of the accident.

The commissioners made inquiries into "the state of chemical knowledge connected with cast-iron generally," and are disposed to consider it imperfect.

"While referring to these and other researches on a subject becoming daily of more importance to the public, we abstain from all remark as to the forms which may at present appear best adapted for cast-iron beams, further than to observe that when calculations as to the strength of such beams are founded on the supposition that the cast-iron employed is of uniform texture, it would appear difficult to obtain this homogeneity except in castings of nearly uniform thickness in the various parts; that when cast-iron beams are suddenly removed red-hot from the sand in which they are cast, we should expect them to be comparatively brittle, however good the iron may otherwise be; and that some efficient proof of cast-iron beams is most desirable before they are employed in buildings, since, assuming effective forms and the use of good iron, every care having been taken to cool them properly, flaws may exist, not visible externally, rendering them unfit to support the weights they are intended to sustain."

"While on the subject of cast-iron for beams, we would state our strong conviction, founded on a general view of the subject, of the importance of substituting wrought-iron for cast-iron, whenever it can be accomplished, and we anticipate that wrought-iron will be rolled into a sufficient size for all the uses to which large cast-iron beams are now applied, judging from the present size of rolled pieces of iron. When this shall have been accomplished, a great advance will have been made in the use of iron, seeing that beams, or other large pieces of that metal may, with confidence, be relied upon. We consider that when wrought-iron can be thus rolled and employed, its use will become most extensive, and that the consumption of iron for building purposes would be greatly increased, to the benefit of an important branch of our national industry."

They urge with great propriety that experiments respecting the best and strongest forms of wrought and cast-iron beams and columns should be conducted by officers of the Royal Engineers, at Woolwich, or elsewhere, anticipating that such experiments would be of great public importance, by leading to highly beneficial and practical results, the more beneficial in proportion as a knowledge of them could be disseminated by publications of a moderate price.

At the close of the joint report Mr. Cubitt has introduced some remarks and suggestions which are so important, that we are induced to transfer them entire to our pages.

"And I would further humbly represent to your Majesty, that since the first introduction of iron into buildings, its use has progressively increased; and considering that it is desirable to encourage the erection of buildings that are composed of incombustible materials, affected as little as possible by the changes of weather from dryness to humidity, and free from the effects of dry rot, or the ravages of vermin, and cast-iron at present being one of the principal materials by which these advantages are conveniently secured, there is, it must not be disguised, great danger to be apprehended in its use in consequence of our limited and imperfect knowledge of its qualities and properties.

Buildings constructed with floors of wood, though at the mercy of an incendiary, and subject to many inconveniences, have at least this one advantage, namely, that an injudicious application of it in their construction is to be less dreaded than when cast-iron is the substance employed.

Wood being much more elastic receives, without injury, shocks which would be fatal to cast-iron; while its great flexibility adapts it to give warning of its own insufficiency, or of an undue pressure acting upon it, perhaps in time to avert danger; whereas cast-iron, from its nature, is incapable of affording the like demonstration of its weakness; and the fall of a building so constructed, from the weight and solidity of the material, is likely to be attended with far more disastrous consequences.

Yet, notwithstanding the many casualties to which cast-iron is liable, its introduction into buildings has been a great gain; and I believe that fewer accidents have happened, with all its disadvantages, than might have been reasonably expected. And buildings very essential to the safety of the inhabitants of thickly-peopled towns, affording security against the devastations of fire, either by diminishing the risk of its first outbreak, or cutting off the communication with the adjacent burning houses, in order to stop the progress of the flames, could not be constructed conveniently, adapted to the purposes of trade or for public rooms, without the use of iron.

The erection, then, of such buildings being of the utmost importance to all classes of the community, and our knowledge of the best forms and arrangements of cast-iron beams not being based upon principles the correctness of which cannot be questioned, I do feel that any attempt by legislative enactment to control the erection of this kind of buildings might prove vexatious in its operation, from the difficulty there would be (in the absence of acknowledged correct data on which to found comprehensive rules for the regulation of such buildings, and amidst the conflicting opinions of persons who have thought much on the subject), in selecting proper persons to whom authority might be given, who would have sufficient practical knowledge to ensure their decisions being always satisfactory, or who would consider the subject sufficiently alike to secure a uniform practice in the different districts, without which uniformity persons might be called upon to vary their manner of building, if it happened to be in another district, according to the notions of the surveyor of each. If they were too severe, it would retard the erection of buildings intended to be fire-proof while on the other hand a false confidence might be given, that would prevent the careful consideration of the parties principally engaged, owing to their being relieved from responsibility.

It therefore becomes desirable that every possible facility and encouragement should be given to persons to improve and make buildings more safe and durable; and I should regret if any thing were done that might interfere with the use of iron so as to retard its more general introduction, as it appears to me to be a material the use of which it is of the utmost importance in every way to encourage.

Much, however, if not all the risk involved in using iron for beams would be avoided, by the substitution of wrought for cast-iron; but up to the present time, the anxiety for this change is not widely enough diffused to lead to any immediate practical result in the manufacturing of wrought-iron beams of such dimensions as are applicable to buildings of the largest size. And it may be remarked that the larger the building is, there is generally greater danger of failure, with more deplorable results; consequently the more urgent need there is for increased precaution in providing a corresponding amount of strength, the greater are the difficulties at present experienced, at least as regards wrought-iron.

The expenses necessary to the production of large masses of iron, rolled in the form of beams, being more than a private individual might feel himself justified in incurring for his own use, and the demand from an inadequate conception of their value not being sufficiently pressing or extensive to secure the manufacturer from loss, it is to be feared that it will take some time yet before we shall be in possession of the many advantages which it may be expected will result from their manufacture, unless some stimulus be given in order to hasten the attainment of this very desirable object.

I therefore humbly suggest for the consideration of your Majesty the expediency of devoting 1,000*l.* or 1,500*l.* to this purpose, and would propose that premiums of such sums as it may appear advisable, be offered for the best and strongest rolled iron beams, calculated for the use of floors, to sustain a load not under 25 tons, with bearings not less than 24 feet apart.

And in order to ensure a steady progress in the improvement of the manufacture of iron generally, perhaps an exhibition once a year of the best samples with new forms, will forward the attainment of this end. Such samples might be tested in a proving house, which it may be thought expedient to establish for the accommodation of the public generally, where parties may be allowed to have beams or chains proved at a moderate expense, by which the value of the commodity and its fitness for the proposed work may be ascertained.

The cost of apparatus for proving beams only, being heavy, and requiring much practice in order to make such fully available and to arrive at correct results, it follows that those persons only who are extensively engaged in building, provide themselves with means for testing the strength of iron beams, whilst those whose use of them is occasional have no convenient opportunity of proving them; and it would seem that such persons have greater need of this sort of assistance, than those who, from their extensive practice, become more conversant with the general strength of iron.

I would therefore beg leave to recommend for the consideration of your Majesty's Government, the expediency of providing a proving house, if not in every large town, at least in London, where any persons might send their beams, and rely upon their being correctly tested.

I believe that if facilities were furnished for getting wrought-iron of large dimensions, very few large timbers would be used in building; and as iron can be produced in unlimited quantities, and the whole of the cost of its production spent in employing the labour of this country, the benefit it would produce could hardly be calculated; for, in addition to that required for our own use, an immense demand would grow up for exportation, as it would provide the means of making safe and durable fire-proof buildings — what every person desires, but which at present is very difficult to attain.

Thus the community at large would be benefited by an extended manufacture of wrought-iron, and particularly all the public works under the immediate control of your Majesty's Government. All buildings, whether used as storehouses, barracks, or hospitals, might be rendered more safe and more permanent. Large beams of wrought-iron might be very advantageously employed in ship-building generally, and more especially for supporting the decks over the boilers of steam-vessels. And, to conclude, another step would be taken in order to secure to this nation that pre-eminence it has hitherto maintained in the manufacture of iron.

All which I humbly certify to your Majesty.

THOS. CUBITT.

London, 28th February, 1845."

We have confined ourselves in the present notice to those parts of the report which refer more particularly to the mill at Oldham, and shall return to the subject with reference to the House of Correction at Northleach, and the information to be obtained from the evidence generally.

THE WILTSHIRE TOPOGRAPHICAL SOCIETY.

THE anniversary meeting was held on Saturday last, to receive the report, audit the accounts, and elect a new council.

The second volume of this society's publications will be ready in the course of June; being "A Memoir of John Aubrey, F.R.S., embracing his auto-biographical sketches, a brief review of his personal and literary merits, and an account of his life and works; with extracts from his correspondence, anecdotes of some of his contemporaries, and of the times in which he lived."

For this work, which promises to be one of very great interest, the society are indebted to Mr. Britton, who has devoted to it much time and labour.

GREENHOUSES, VINERIES, AND AVIARIES.

AWARD UNDER THE BUILDINGS ACT.

The official referees have recently made an award which will affect very materially the construction of greenhouses and such like buildings; believing it to be a matter of some importance, and that the decision should be known, generally, we print it entire.

"Whereas the official referees of metropolitan buildings, duly appointed in pursuance of the said Act, have received and duly considered the requisition dated the 3rd day of April, 1845, from Thomas Leverton Donaldson, the surveyor of the (South Kensington) district, whereby it appears that J. Weeks and Day were erecting the (described) greenhouse, and further that the said J. Weeks and Day declined to give notice thereof to the said Thomas Leverton Donaldson, as district surveyor, on the ground that the exception of the Act freed the same from all control, and whereby the said Thomas Leverton Donaldson requests the opinion of the official referees.

First, "as to whether such a greenhouse or conservatory as the greenhouse in question be exempt; and,

Secondly, to what extent the exception of the Act in schedule C, part 7, reaches; and,

Thirdly, whether the district surveyor have any and what control over greenhouses, vineries, aviaries, or such like buildings; and,

Fourthly, whether it be under section 8 or any other part of the Act; and,

Fifthly, whether such buildings may be of wood; and,

Sixthly, whether any difference as to the materials of which they are constructed will arise in the cases of their being attached to another building or completely detached from any other erection."

And whereas the said official referees have also received and duly considered the letter from the said J. Weeks and Day, dated the 25th day of April, 1845; stating,

That "they are advised that greenhouses and particularly one of the description of the one in question fall within the exception to schedule C, part 7, of the Buildings Act, and that the 8th section refers only to buildings of the same kind as those included in some one of the defined classes, and cannot be construed to apply to buildings expressly, and by name excluded from such classes."

And whereas on the 7th day of May, 1845, the said official referees did duly hear the said Thomas Leverton Donaldson and J. Weeks touching the matters of the said requisition, and thereupon the said J. Weeks did demur to the jurisdiction of the said official referees on the ground that greenhouses, aviaries, and such like buildings were exempted from the operation of the provisions of the Metropolitan Buildings Act.

Now we, the said official referees, do hereby find, determine, and award as to the first question—

That inasmuch as all buildings (except buildings comprised in schedule B), are by section 5, of the said Act, brought within its operation; the greenhouse or building in question must be deemed to be within the provisions of the said Act.

And further as to the second question—

That the exception in schedule C, part 7, must be deemed to apply only to the mode of determining the rate of such greenhouse or building, and the thickness of the walls, and any other matters dependent upon the rate of building.

And further as to the third question—

That greenhouses, vineries, aviaries, or such like buildings, are within the jurisdiction of the district surveyor.

And further as to the fourth question—

That such buildings are under the direction of the district surveyor, under section 8 of the said Act.

And further as to the fifth question—

That unless they be "insulated buildings," within the meaning of the said Act, such buildings must not be built wholly of wood.

And further as to the sixth question—

That such buildings, whether attached or detached from other buildings, must in either case be conformable to the provisions of the said Act.

And with regard to the costs and expenses attending this reference, we do hereby further award that inasmuch as the case was one of reasonable doubt, the same be paid by the said J. Weeks and Day, and Thomas Leverton Donaldson, or by either of them, that is to say the sum of 4*l.* 2s., as and for the fees and expenses of the office of metropolitan buildings, to the registrar of metropolitan buildings, at the said office, No. 3, Trafalgar-square, London, on or before the 2d day of June, 1845; and that the party by whom the said fees and expenses shall be paid be entitled to be reimbursed one moiety thereof by the other party.

In witness whereof we, the said official referees, have to this our award, on five pages of foolscap paper, set our hands this 24th day of May, 1845. (Signed),

JAS. W. HIGGINS, WILLIAM HOSKING. } Official Referees.

POWER OF THE OFFICIAL REFEREES.

Sir,—Have the kindness to inform me, and builders concerned in the following question, —What remedy have the official referees, under the Metropolitan Buildings Act, to compel obedience to their dictum, in cases where building owners contend for their right to proceed with buildings commenced before the 1st January last, in opposition to their award made against such buildings, upon the assumption that such buildings were not sufficiently commenced to take them out of the operation of the said Act?—If their course be by application to magistrates, do you not conceive that, as the Act defines no extent of commencement, the builders may confidently rely on the general honour and integrity of that body (the magistrates), to protect the building community from the limited views desired to be set up by the official referees in their letter to Mr. Allen of the 4th of January last? I refer you to your page 154, containing the following observation of Mr. Jeremy, in a case reported to have been heard before him at Greenwich: "I must take the clauses in their literal interpretation;" by which straightforward reading, may it not be inferred, the magistrates will not lend themselves to any party (however influential), to the contravention of the express language of the Act, and the consequent injury to builders so circumstanced? Your consideration of, and reply to, this inquiry, will, through the medium of your journal, oblige a constant reader and subscriber.

A BUILDER.

*** The award of the official referees is as binding and conclusive against every person as if made under an order of reference of the Court of Queen's Bench, and may be enforced by that Court in all respects as if it were so made.

HEALTH OF TOWNS.

The Fabian policy of Government with respect to the sanatory condition of towns and the consequent moral improvement of the industrious classes, challenges a remark at this advanced period of the session, the more so as nothing yet has been even proposed. Should this lethargy on the part of our rulers continue a few weeks longer, filth and disease will have acquired an extension of their term of duration beyond what was expected. Her Majesty in her speech from the throne last February, *emphatically* said that it would be highly gratifying to her if Parliament could devise the means of promoting the health and comfort of the poorer classes of her subjects.

This gratification the Government appear disposed to withhold, at least for the present. They have already issued their fiat that light and air are still to be paid for, and have contented themselves with simply announcing that a general measure is in embryo, but when to be brought forth, or if at all, there is no pledge. We are much disposed to fear that autumn will find the health of towns in precisely the same condition as the spring did. Bills affecting the rich have been known to pass through their various stages with an almost electric speed; is there any enactment to prevent the same potent spell being applied to bills affecting the poor? If not, then, there may yet be hope during the present session?

THE BRITISH ARCHÆOLOGICAL SOCIETY.

If the amount of ill-feeling which has been generated by the unfortunate dissension in this association could have been calculated by those (be they on which side they may) who first fermented it, we are disposed to think they would have used their best endeavours to prevent disunion rather than to fan a trumpery spark into the violent flame now burning. More annoyance has been caused to individuals than by any similar disagreement that has occurred for many years; and the whole course of the proceedings speaks very ill for the temper of the times.

The virulence with which that portion of the original committee who appealed to a general meeting of the subscribers, has been assailed by the friends of the other portion, is quite unexampled, and the mode of attack adopted is fraught with dangerous consequences to society at large, and should be repudiated by every upright man. *Character* is the mark they have aimed at, and whispered calumnies, anonymous letters to connections and superiors, published charges of almost swindling, which are found on examination to belong simply to the general question "are we right or wrong?" and do not attach to character in the slightest degree,—are the arrows which have been made use of. We do not hesitate to repeat, that it behoves every man who wishes to exercise an independent opinion in the world, to set himself resolutely against such a mode of proceeding.

Mr. Pettigrew, on whom much of the violence of the attack has fallen, has just now published a letter to the very Rev. the Dean of Hereford "in reply to the publication of his correspondence relative to the affairs of the British Archæological Association." In this he refers in strong language to the attempts which have been made to fix on him *individually* as the person refusing to refund money subscribed, and not as the treasurer of an institution accountable to the members for the proper employment of the funds. He says he "would gladly have avoided every harsh word; but the possessor of an honourable mind will not fail to acquit me for the strong expressions of indignation with which I repel such mean, dastardly, and villanous insinuations and assertions." Personally we have not the pleasure of much acquaintance with Mr. Pettigrew, certainly much less than we have with many of the opposing party, and have been impelled to make the foregoing remarks, without any reference to the general question, solely by a sense of public duty, and a desire to assist in preserving the right of differing in opinion from others without being exposed to calumnious attacks on character.

MOVEMENT IN THE SOCIETY OF ANTIQUARIES.

At a meeting of the Society on Thursday, the 4th instant, W. R. Hamilton, Esq., Vice-President, in the chair, it was announced from the council, before taking the ballot on Dr Bromet's motion,* that they had passed a resolution to the effect that the council should meet once in every month during the sitting of the society, and oftener if necessary. Some of the members were anxious to adopt this as an amendment on the motion before the meeting, feeling that merely an order of council could of course be rescinded by the council at any time, but it was urged by Lord Mahon and others, that the meeting had no power to pass an amendment that night, but simply to say aye or no to the motion, of which notice had been given; and it was ultimately so ruled by the chairman.

On taking the ballot, twenty-six voted for the motion, and thirty-one against it, preferring in courtesy to take what was offered by the council rather than to exact more. The new resolution, if properly carried out, cannot fail to prove advantageous to the society, and will be speedily followed, we have little doubt, by some important changes. Mr. Disney, Mr. Pettigrew, Mr. Hawkins, Mr. Wyndham, and Mr. Wansey, took part in the debate.

* "The council shall meet for the dispatch of business in the usual place at three o'clock on the first Tuesday of every month (except during the months of September and October), and such meetings shall not be adjourned unless by the votes of a majority of two-thirds of the council present."

THE LATE CONFLAGRATIONS IN EUROPE AND AMERICA.

BY J. L——Y.

"Considerations must be—considered."

HARDLY has the ink dried off our essay in the last number of this periodical — than another catastrophe (in Fenchurch-street) startles our mind, and awakens painful sympathies in every breast. Besides the individual sentiments which may agitate us on such occasions—it is the honour of the country, it is the honour of our *royal* art, which are nigh being at stake, and a future *Tacitus* of our times may strongly animadvert on a social condition, where such things could happen; on the state of architecture, in fine, which constructed buildings, where every conflagration might subject its dwellers to involuntary martyrdom! These are stern words—but we *know* such thoughts exist in the *highest* quarters, and it is the sacred duty (!) of an honest journalist to give them unflinching utterance.

It is the besetting sin of the age to consider every radius of our social condition disjointedly, solitarily, isolatedly. Such, however, is not the case. Our pasteboard and gingerbread and cobweb buildings are not *momenta* standing alone; such all is intimately and innermostly connected with every thing else around us—every thing the result of sheer (atheistic) egotism and purblind graspingness. And then things become all a chance, a raffle, a lottery. Messrs. A. B. C. have made 7½ per cent. by the building of the Yarmouth Suspension Bridge—but the daughter, or niece, or son *of* Mr. A. B. or C. have perished on this very same structure, and no bank-check in the world will draw them alive from out of their melancholy, watery grave. If men would think thus—extend the sympathies of consanguinity to every human being (Christianity bids it), then we would at times cut off a *one-half* per cent. or so from our gains; and then, we sincerely believe, many things, all things, would be better.

But we may as well interpolate *our* own thoughts with those, which have been of late uttered at public meetings and elsewhere with regard to the late fires. "Fire-escapes"—have been again suggested, a multitude of fire-escapes, and a number of *proper* persons (this means, of course, conscientious, religious) to superintend and use them. Without wishing to detract from the adequate utility of this expedient—we must say that it is only a *palliation* and not a radical, curative remedy. This is the way in which we *moderns* proceed constantly. Our artisans possess no adequate walks and play-grounds and public festivals and baths to make them healthy, hale, cheerful; but we throng hospital on hospital, infirmaries of all shades and colours, truss societies, *et hoc genus omne*. The thing is heart-rending in the extreme, but an honest journal for the progress of any (mechanical) art, *must* broach such subjects, bearing on the welfare of the *workers*. Conceeding, therefore, an adequate value to the introduction of a forest of fire-escapes—we say, we have conjointedly to look to "the *regeneration* of architecture," the *royal* art of old. But if we were to say no further, we would merely repeat one of those numberless (*un-practical*) commonplaces, with which papers are stained and blotched now-a-days. It is the *punctum saliens*—it is the *fulcrum* of Archimedes (on which *he* challenged to move the world), which is to be found, in architectural or any other regeneration of our social condition. And thus we say, that many, many people could not *exist* at present without their seven and a half per cent. and so on. Of these, we may say with Dante: "*guarda e passa.*" But there are others, many others, who are not in such (artificially) needy circumstances—besides, persons, wide-hearted, benevolent, bold, ambitious, even amongst those who speculate in and live on architectural pursuits; and it is to those to whom we exclaim humbly, yet energetically: "speculate not on the chance and jeopardy of human life—be ashamed owning those mud and swallow-nest structures, unfit (aye, in many other respects) for the dwelling and living (!) in of human beings; set an example; restore architecture to its pristine, worthy state—not only to that of the (pagan!) Romans, but of our Christian forefathers of former centuries!" But as *any* (legitimate) means are legitimate for good purposes—we go still further, and will increase our philanthropic arguments by even speculative ones. Thus, builders of theatres, halls, hotels, inns, manufactories, in fact any building, where numbers congregate, might considerably increase their notoriety, popularity (and consequently gain), if they were to state that their property is *fireproof*, the staircases of stone, etc. To allude especially to hotels, the providing of stone staircases instead of those of (well-*resinous*) deal, could be done in London during the summer recess, etc.

We have introduced in our former paper the name of State's Architecture (*Staat's Architektur*), and we shall find that England is far behind countries in this branch of other public welfare. Not speaking of the Secretary of State for *Public Works* in France—even Austria, one-sided Austria, possesses very deep official contrivances in this respect. There is the supreme Aulic commission of public buildings (*Kais. Hof-Bau-Rath*) at Vienna, with directors of building in each provincial capital: another department is superintending even the construction of canals, dikes, etc., viz. the direction of aquatic works (*Wasserbau Direktion*). In Prussia, the late ideal *Schinkel* was at the head of the department of public buildings.

But as England possesses, after all, already a *Department* (!) *of Public Instruction*, (every thing but the *name* of a distinct secretaryship of state), another department of public works is a thing not so impossible as many may imagine. But we are apprehensive, lest the *extended* (or rather mistaken) ideas of personal liberty might mar its exertions and scope. We call the hitherto current ideas of personal liberty mistaken ones, and if we come to know, that our humbler classes possess even the liberty of dying by starvation, we think we have proved our assertion by a very few words. Thus we say, in the present instance—if any person or family chose to live in a house made of *fulminate of silver*, they are welcome to do so; well understood, on some sequestered spot of Salisbury plains, or Marston Moor! But they must *not* take any lodgers or servants with them, who being either injured or distressed by fire, may become chargeable to the parish — viz. the *nation*. Personal liberty does not go so far as to get 7½ per cent., with the liberty of drawing on the public exchequer for those very accidents, which are included as it were in the obtaining of this *dividend*. Every house tenanted is worth insuring now, and can get insured. But this relates only to the *landlord*. No one seems to care, however, whether the artisan and working man, yielding the 7½ per cent., by the renting of some wretched hovel run up of wicker-work and deal, is insured or not. But if the head of the family has been burnt, or if they by the loss of furniture, tools, and other utensils, get distressed, and eventually sent to the poor-house, hospital, or prison (!)—who is, after all, the cause of all these calamities (still more so in their national aggregate) but him, who orders such structures to be erected, the artist (?) who is so unfortunate as to be compelled to execute such (!) orders.

We believe, therefore, we have broached reasons, religious, *humanitarian*, artistic, and politic, for dissuading people to run on in the present way of futile, low, unsafe and ugly architecture—to make them feel, in fine, that it is unworthy of a *free people* to dwell in such structures; and that a bettering, an "improvement of our *social condition*," inculcated even from the height of the throne, must begin somewhere—be it even in architecture.

NEW WORK ON EGYPT.—Dickinson and Son, of New Bond-street, are about to publish a collection of views of the most celebrated temples, &c. in Egypt, from drawings made on the spot in 1844, by H. Pilleau, Esq., 16th Lancers. It will comprise the following subjects:—The Island of Philæ, with a general view of its ruins; temple and propylœa on the Island of Philæ; temple of Koum Ombou; temple of Edfou; interior of the great hall of Carnac—(Thebes); ditto from a different point of view; obelisk and propylœa at Luxor—(Thebes); ruins at Luxor; the two Colossi at Thebes; temple at Medinet Abour—(Thebes); interior of the temple of Denderah; and approach to the Great Pyramids of Geza.

EXHIBITION OF WORKS OF BRITISH INDUSTRY.

THE importance of a periodical exhibition of our manufactures has been often urged and always admitted; and we are glad to learn that the Society of Arts and Manufactures are applying themselves to effect it. The following resolutions, passed at a recent meeting of the managing committee, will briefly explain the objects sought to be attained:—"1. That the experience of foreign countries has proved that great national advantages have been derived from the stimulus given to industrial skill by bringing the manufactures of different establishments into competition with each other, and by presenting honorary rewards to those who have excelled in each department; cheapness of production, and excellence of material, both in execution and durability, being assumed as the *criteria* of superiority." That by carrying out a similar principle in this country, founded on the experience of the past, but with more entensive views, still greater benefits may be anticipated.—2. That having regard to the objects promoted by the Society of Arts, Manufactures, and Commerce, it would appear to be their peculiar province to attempt to carry out such an object in Great Baitain on a scale commensurate with the magnitude of the interests involved.—3. That immediate preparations be commenced for such a periodical exhibition of works of industry, at which the producers shall be invited to display their various productions." The details of carrying out this plan, on a comprehensive scale, were left to be considered at future meetings of the committee.

In the report read before his Royal Highness Prince Albert on the 2nd instant, when the society's rewards were distributed, this proposition was brought prominently forward. The following animated picture (extracted from one of the daily journals) representative of an exhibition of the products of national industry, will bring home to the minds of those who have never witnessed such a display, a scene of extraordinary interest—"A display of the perfection to which we have brought the mechanical arts would include every manufacture of the empire. Each producer would have his stand crowded with the choicest specimens of his skill; china from Worcester and Derby; the finest lace from Nottingham; the most splendid brocades and silks from Spitalfields, the newest patterns from Manchester, from the raw cotton to the finest manufactured produce; glass, varying in shapes, from the spun fibres, for robes and vestments, to the most superbly cut chandeliers; the produce of Birmingham, from the common cut nail, to the magnificent ormolu decorations for palaces; carpeting of brilliant patterns; a display of chronometers, watches, and clockwork; jewellery, of the rarest and most delicate devices; paper of the highest quality the mill can produce; printing in illumination and gold; cloths, of all quality and all colours; the straws of Dunstable, the ribbons of Coventry, and the crockery of Matlock; the latest locomotive—that triumph of mehanical speed; the Cornwall condensing engine—that masterpiece of economic power; models of iron steam-ships for the Atlantic; of men-of-war, for the dominion of the ocean; of merchantmen, from the ports of London, Hull, and Liverpool; the finest qualities of arms, in guns, pistols, and watered sword blades; and the choicest specimens of carving and cabinet work. Such an exhibition would include all the varieties of articles produced by the skill of the vast body of English artisans—the most ingenious, the most patient, and the most persevering in the world—in a word, everything that could render the exhibition worthy of the industrial manufacture of a mighty empire."

A considerable sum has been already subscribed by the committee towards this important object. We cannot omit this opportunity of alluding in terms of praise to the present active and excellent secretary, Mr. Francis Whishaw, who, by his energy and skill, has been mainly instrumental in restoring the vigour of youth to the ancient society of arts.

TAKING UP PUBLIC PAVEMENT.

A few days ago Mr. J. Newson, builder, Grosvenor-mews, was summoned before Mr. Hardwick, Marlborough-street, by Mr. Richman, surveyor of St. George, Hanover-square, for having broken up the pavement in Curzon-street, without license from the paving board, whereby he had incurred penalties to an enormous amount.

Mr. Richman said the defendant had obtained a license to make eight holes, for the purpose of erecting a hoard before the house of Colonel Merrick, in Curzon-street, where some alterations were being made. In addition to this, the defendant had constructed some cellarage, and had taken up the pavement to the extent of about 500 feet, without having first obtained a permission from the paving board. By this proceeding the defendant had subjected himself, under the 53rd clause of Michael Angelo Taylor's Act, to a penalty of 5*l.*, or not exceeding 10*l.* per foot. The board of commissioners had, however, determined not to press for a heavy penalty, and, though the sum of 60*l.* was named, they would think the justice of the case met by a fine of 5*l.* or 10*l.*

The defendant said he had violated the Act quite unintentionally. He had been urged to use expedition in constructing the cellarage, and he had quite forgotten to obtain the requisite licence. He had since obtained it, and paid all that was required.

The architect, who was present, said he was accountable for the breaking up of the pavement, as it was owing to the pressing directions he gave to the defendant to hasten the alterations that the pavement had been broken up. He thought, however, that the surveyor had mistaken the penalty imposed by law for this offence. He believed the clause empowering a fine of 5*l.* or not exceeding 10*l.* per foot, only applied to cases of wilful damage. To other cases the law affixed a penalty of 5*l.* or not exceeding 10*l.* If the defendant's case came under the 53rd clause, he would have incurred fines to the amount of between 5,000*l.* and 10,000*l.*

The surveyor said the law evidently intended to apply the 53rd clause to such cases as the present one. Builders would cheerfully pay a 5*l.* or 10*l.* penalty for breaking up the pavement when they could by that means construct an area or a cellar.

Mr. Hardwick was of opinion that the case had been fully sustained, but as the paving board had suggested a penalty of 5*l.* he would make that the amount of the fine.

The money was immediately paid.

RIGHT TO ERECT LADDERS AND HOARDS.

An action was tried in the Court of Exchequer, on the 29th ult., brought by Mr. Davey, a bricklayer, against the surveyor of pavements for St. Anne's, Westminster, to recover compensation for the alleged illegal removal of a ladder and other articles; to which the defendant pleaded, as a justification, that the ladder, &c., were encumbering the footway of Newport-court, in his jurisdiction; to which the plaintiff replied, that he had the license of the defendant for his acts. At the trial before the Chief Baron a verdict passed for the defendant, his lordship being of opinion that the case required a license; that the license given did not justify the conduct of the plaintiff; and that the notice of action was not good, and need not have been pleaded. Afterwards the present rule was obtained to review that opinion; and now

Mr. Jervis shewed cause.—The main question was, whether a license is necessary, under the local Act 57 Geo. 3, c. 27, to authorize the plaintiff in erecting a ladder against a house, and whether the license here given—namely, "to erect a ladder on the footway of No. 14, Porter-street," is complied with by the erection of a ladder in the adjoining street, in which No. 14, Porter-street, had another front.

Mr. Humfrey and Mr. Corrie, on the other hand, contended that a license was only required under the Act in question for the erection of an enclosure, for the purpose of depositing materials therein with the view to the reparation of a house. As to the objection to the notice, whether it be good or not, it could not arise, for the want of it ought to have been pleaded, and it had not been so done here.

The Court, after much discussion, made the rule absolute for judgment *non obstante veredicto*; it being the better opinion that no license was required for the acts of the plaintiff, and, further, that the want of a sufficient notice was the subject of a plea. At the same time it must be known that had the matter required a license, the terms of the license ought to be strictly followed. A license, for instance, under this Act, to "erect a hoard opposite No. 14, Porter-street," could not be construed into a liberty to put up a hoard in another street which that house might happen to front as well as Porter-street. Under the circumstances of the case, however, it was clear that no license at all was required, and the facts in the plea not affording any justification to the defendant, the verdict given for him thereon must be set aside, and judgment entered for the plaintiff notwithstanding it.

Judgment for the plaintiff accordingly.

ALLWORTH CHURCH, NEAR READING.

This interesting and almost unique specimen of our early decorated style, which has long been an object of interest to the antiquary and lover of church architecture, is now undergoing some necessary repairs; and an appeal has been made in the hope that all who delight in the reparation of our ancient edifices will be induced to lend a helping hand to restore it to somewhat of its original beauty. The structure is of flint, and a very superior piece of architecture. The south aisle, on the east and west ends, and on the south side, contains very elegant windows of three lights, adorned with geometrical tracery. The sepulchral effigies, nine in number, which occupy eight tombs in the interior are placed beneath large ornamented ogee arches, richly decorated with trefoils, crockets, roses, and quatrefoils, and form a very rare specimen of the ornamental architecture of the early part of the fourteenth century. The whole has suffered very much from the violence of the troublous times of the Revolution, and has fallen into great decay. The parish (consisting entirely of an agricultural population) have not had the means of repairing the damage inflicted on it, but they are now expending a rate upon the edifice which will render the structure safe from any further dilapidation, and have raised a considerable sum by subscription among the landowners and others interested in the parish, which will enable them to begin the work of restoration. The walls, the windows, the arches, the canopies of the tombs, all require cleaning and considerable repairs. The timbers of the roof must be relieved of their coat of plaster and restored, the whole of the interior re-paved, and the pews re-arranged, so as to shew the architecture to advantage, and to afford increased accommodation to the poorer portion of the inhabitants; and an East window to correspond with the others should be inserted in the chancel in the place of the present modern light.

Birmingham Society of Arts and School of Design.—The annual meeting of this society was held on Friday last, and was very numerously and respectably attended. Lord Calthorpe presided. The report stated, that the committee "are able, with great satisfaction, to advert to the circumstances of the past year, as affording a proof that the expectations of advantage to a large portion of the persons engaged in trade and manufactures, by the adoption of the present system under which the society is working, have been fully realised. Your committee can refer to the number of students attending the school, and the result of that attendance exhibited in the works of art selected by your committee as deserving premiums, as showing that in art alone, as connected with manufactures, considerable progress has been made, while the invariable attention, industry, and good conduct of the students are fully bearing out the anticipations of those who augured moral results might be reasonably looked for, from the enlargement of the plans and operations of the society."

FREEMASONS OF THE CHURCH.

June 10.—The Rev. G. Pocock, L.L.B., in the chair.—The minutes of the last meeting were read and confirmed. The Rev. J. H. Brooks, M.A., Senior Fellow and Bursar of Brazennose College, Oxford, was elected an honorary fellow and one of the chaplains.

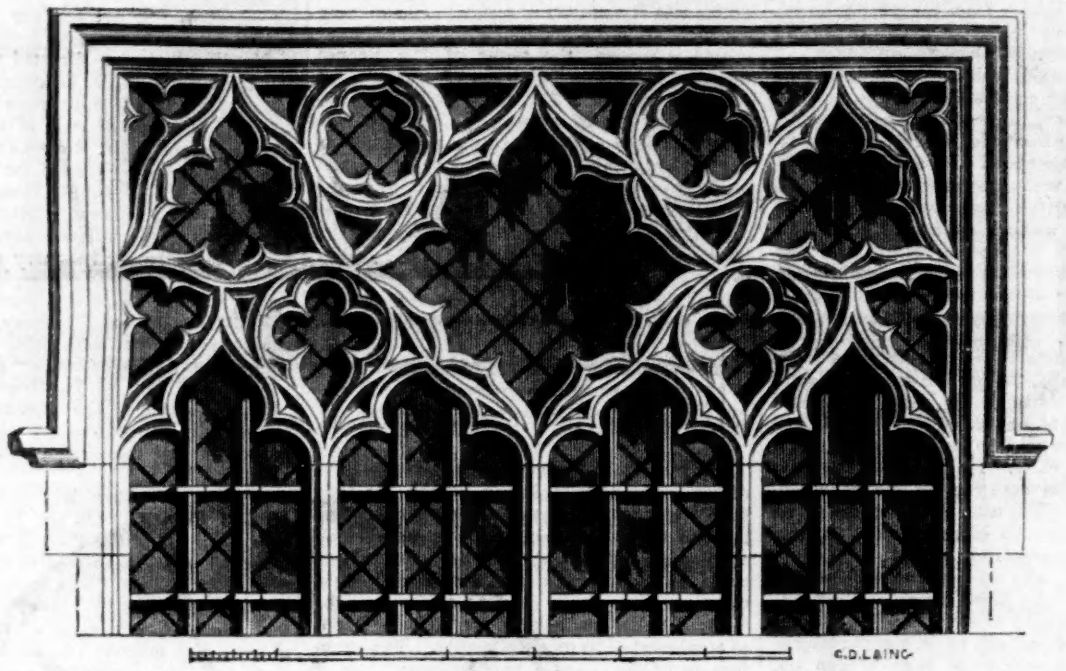
Mr. W. Papineau, directed the attention of the meeting to what he considered the bad taste exhibited by the directors of the railways in using the pointed style of architecture for engine-houses. Mr. Rogers exhibited an oak stall seat, carved by himself, for the Rev. Henry Boucher, of Thornhill House, Stalbridge, Dorset. Mr. T. Leeson exhibited an encaustic tile from Tintern Abbey. Mr. George Isaacs exhibited a circular reliquary of silver, gold, enamel, and precious stones, bearing the date 1247; also an enamelled jewel of the early part of the sixteenth century, enriched with rubies, pearls, and diamonds, and bearing in the centre a conventional "pelican in her piety;" and Mr. W. H. Rogers a silver-gilt chasuble button of the fifteenth century, perforated with a group of the crucifixion: also, an ornamental monogram of Jesus, by David Hopper, 1530.

A lecture was then delivered by Mr. George Russell French, "On the Sacred Architecture Recorded in the Bible," much of the substance of which has appeared in the Builder, under his initials. The lecturer noticed the erection of altars by Noah, Abraham, Isaac, and Jacob, the setting up of the single stones of memorial, most of which had names, as the Bethel of Jacob (whence the affinity was traced to the Bethal stones of Druidical times), the Ebenezer of Samuel, the great stone of Abel, the stone Ezel, Absalom's hand, and many of these stones remained for centuries after their dedication. Some of the stones were set up as witnesses of covenants, as Jacob's Galeed, and that of Joshua at Shechem. "The twelve pillars erected by Moses, Joshua, and Elijah, were probably in the form of circles, like the temples of Stonehenge and Abury, and, like them, surrounded by the valium or trench, as was the case with Elijah's structure on Mount Carmel. The lecturer pointed out that Solomon's Temple agreed in its plan and details with those of Egyptian temples, rather than with the architecture of Greece, and the close connection of Solomon with the Egyptians, by marriage and commerce, sufficiently accounted for the style of his temple agreeing with their mode of building. The temple which excited so much admiration in our Saviour's days was neither that built by Solomon, nor that restored as described by Ezra, but it was that recently and entirely rebuilt by Herod the Great, and the account of the vast size of "the goodly stones" of which it was composed is borne out by the magnitude of some still to be seen at Baalbec. It was, therefore, Herod's Temple whose foundations were ploughed up by Terentius Rufus, fulfilling the prophecies of Micah uttered seven centuries beforehand.

NEW ROAD TO HIGHGATE AND HAMPSTEAD.

A plan has been recently submitted to the office of "woods," for improving the means of access to Highgate and Hampstead. It is proposed to form a new road from the top of Swains-lane above the cemetery at Highgate, to the new street now forming from Farringdon-street, taking the direction of Maiden-lane, without its windings, and raising or lowering the road as occasion may require to make a regular inclined plane, in a straight line, by which the hill may be ascended by horse or foot, without the rise being perceptible. The memorial sets forth that this line would have the peculiar advantage of rising gradually from Battle-bridge nearly the whole way on a natural embankment. "To make it complete two artificial embankments will be required; one across the fields from the top of Swains-lane, nearly in direction of the present foot path to the highest part of Maiden-lane, the other from thence to the new lodge, lately built at the Maiden-lane end of the Tufnell Park-road; and to cross the Junction-road that leads from the Holloway-road to Kentish-town by an arch over it."

WINDOW FROM CHARING CHURCH, KENT.



CHARING CHURCH, KENT.

The picturesque village of Charing, in Kent, is situated about five miles from Ashford. Besides some interesting portions of ancient domestic architecture, there are considerable remains of a monastery or some such building adjoining the church. The latter structure is a large handsome building, but affords very little worthy the architect's remark besides the window represented above; this is in the south aisle, and appears with its square head, rather out of place. It is very large, being 6 feet 2 inches from the sill to the springing. Notwithstanding the decorated character of some of the tracery, I consider the date of the window must be placed in the late period of Gothic architecture. The window is very roughly worked, the design is ingenious, and the effect of it is very good. The church contains some of its old carved benches, with ornamented ends, but these, as well as the font, are not rich enough in character to be worth engraving.

The most singular portion of the interior is the roof, which is Elizabethan; the collar beams are richly carved, and a corbel ornament, like double consoles, is placed at the angle formed by the beams and the rafters. The whole is painted black and white, looking very odd and quaint. C. J. Richardson.

THE NATIONAL GALLERY.

ARRANGEMENT OF PICTURE GALLERIES GENERALLY.

Few buildings have received a greater share of abuse, just and unjust, than this last luckless effort of poor Wilkins, by which his life was embittered and his death accelerated. Mr. Eastlake, as we stated last week, has now taken the field against it, and, in a letter to Sir Robert Peel, points out its defects as a repository of pictures, and urges that a more suitable building ought to be obtained. The evils he points out are comprised under the following heads:—

"The inconvenient arrangement, or disposition, of some of the rooms.

Insufficient space for the due exhibition of even the present collection of paintings.

Insufficient room for the accommodation of those desirous of studying in the Gallery.

Want of offices.

The imperfect system of ventilating and warming the rooms."

With regard to the disposition of the rooms, it will be seen, by a reference to the plan (Fig. 1), which, through Mr. Eastlake's kindness we are able to introduce, that the two small rooms A and B are ill-calculated for a public exhibition, chiefly from having each but one door, serving for ingress and egress. "The visiters thus passing and repassing are met by the additional streams ascending the staircase, or returning from the principal apartments: the threshold of the gallery is, consequently, often obstructed.

In summer, the effects cannot but be injurious to the pictures, which are exposed in a confined space, at once to a moist atmosphere, and to clouds of dust. Under such circumstances they appear to require cleaning daily (as often as the rooms are swept): this, it is almost needless to say, would be unsafe; and even the frames could not be so frequently dusted without injury to their appearance. The more effectual remedy required is proper ventilation."

As to remedy:—"Shortly after the present gallery was opened, it was proposed to throw the two rooms, A and B with the intervening passage, into one; the stairs would then have partly divided the space, as in the centre room at the British Institution, Pall Mall; but this arrangement, though it would be more convenient in some respects, would much reduce the space for pictures, since two walls would be thus taken away.

If, therefore, this alteration was ever advisable, it cannot be considered so now; want of space being an actual and increasing difficulty. For the same reason, doors could not be opened at C, D, without reducing the surface now hung with pictures by four times the extent of one of the spaces.

The communication between the larger rooms appears to be unobjectionable, as the doors, though single on each side, are of ample width. Nothing seems to be gained in a public gallery by two doors in the same side of a room, unless one of them is made to serve for ingress and the other for egress, and this would be an injudicious restraint in a picture gallery, where the visiter should be allowed to wander freely and retrace his steps as he pleases. It is also to be remembered that, in general, every door is twice the amount of its dimensions, deducted from the surface of wall available for the arrangement of pictures."

The gallery is much too confined for its purpose:—"In consequence even of the addition of two pictures of moderate dimensions (by Guido and Rubens) during the last year, other works, which were before hung near the eye, have been unavoidably placed at too great an elevation to be duly seen, or to be of use to the students who copy in the gallery on the private days.

I need hardly observe that it is not desirable to cover every blank space, at any height, merely for the sake of clothing the walls, and without reference to the size and quality of the picture. Every specimen of art in a national collection should, perhaps, be assumed to be fit to challenge inspection, and to be worthy of being well displayed. It is hoped that there is little danger of pictures being purchased for the nation which will not bear this test; although the case may be sometimes different with regard to donations.

The arrangement of pictures, with a view to their analogies of style, comparative merit, and dimensions (though unfettered by the considerations which must sometimes interfere with the placing of works of art in modern exhibitions), is an undertaking of no small difficulty. Some opinions on this subject, and on the modes of lighting picture galleries, are here submitted.

Lofty rooms should, I conceive, be appropriated chiefly to large pictures, or to pictures with large figures. The upper part of the walls can be thus only properly filled. The space which may remain underneath, in such rooms, is not the fittest for cabinet pictures; although there may be sometimes examples, especially by Italian masters, which might be advantageously so placed. But small, elaborate, Dutch and Flemish pictures should, perhaps, in no case be far removed from the light of which the windows, wherever they may be, are always to be considered the *source*.

The fittest place for the windows, whether in the roof or in the wall, is a question on which much difference of opinion exists. Some are inclined to think that a skylight (always supposed to be furnished with ground glass, or with moveable blinds) is desirable for all pictures. This seems to have been Rubens's opinion; for Algarotti states that the museum which the great painter built for himself at Antwerp was circular, with a single light in the centre of the roof. But if a skylight be the fittest, it should still, for the reasons before given, not be too far removed from cabinet pictures, which require a strong light to exhibit their delicate gradations of chiaroscuro, and the beauties of their execution. Indeed, in a climate like this, and with the effects, moreover, of smoke to contend with, there should always be a superabundance of light; and whatever has been deemed necessary in this respect in the best lighted continental galleries should be rather exaggerated in London. The form of the arched ceiling, next the skylight, is important with reference to this object. The flatter the curve (as tend-

ENGRAVINGS TO ILLUSTRATE MR. EASTLAKE'S LETTER TO SIR ROBERT PEEL.

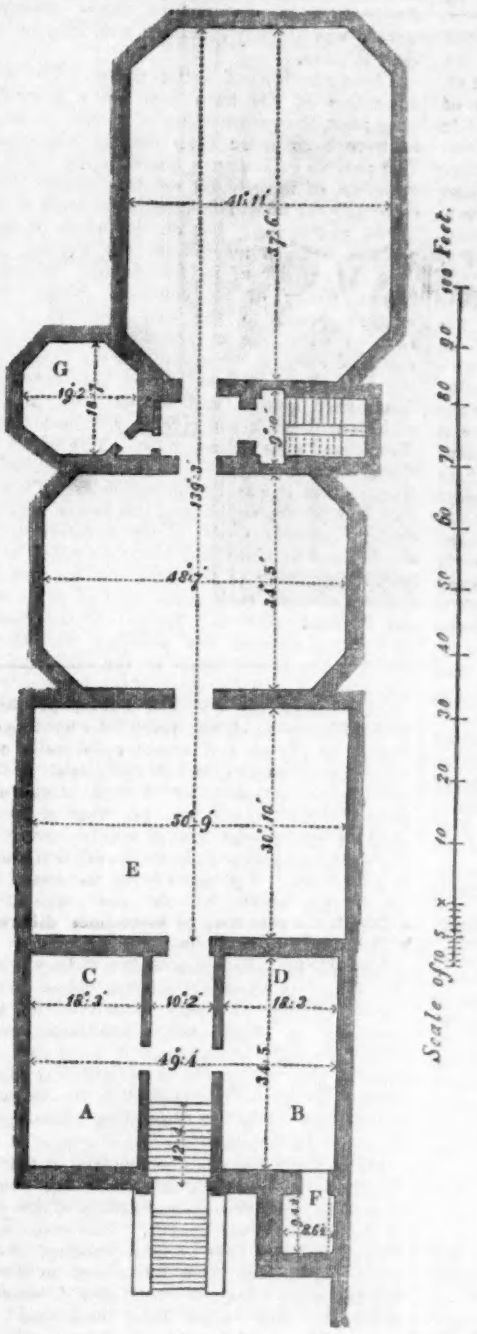


Fig. 1.

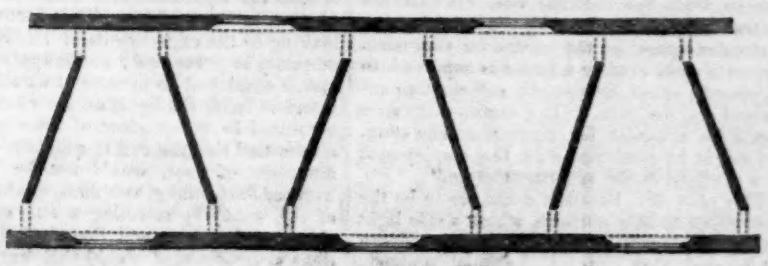


Fig. 2.

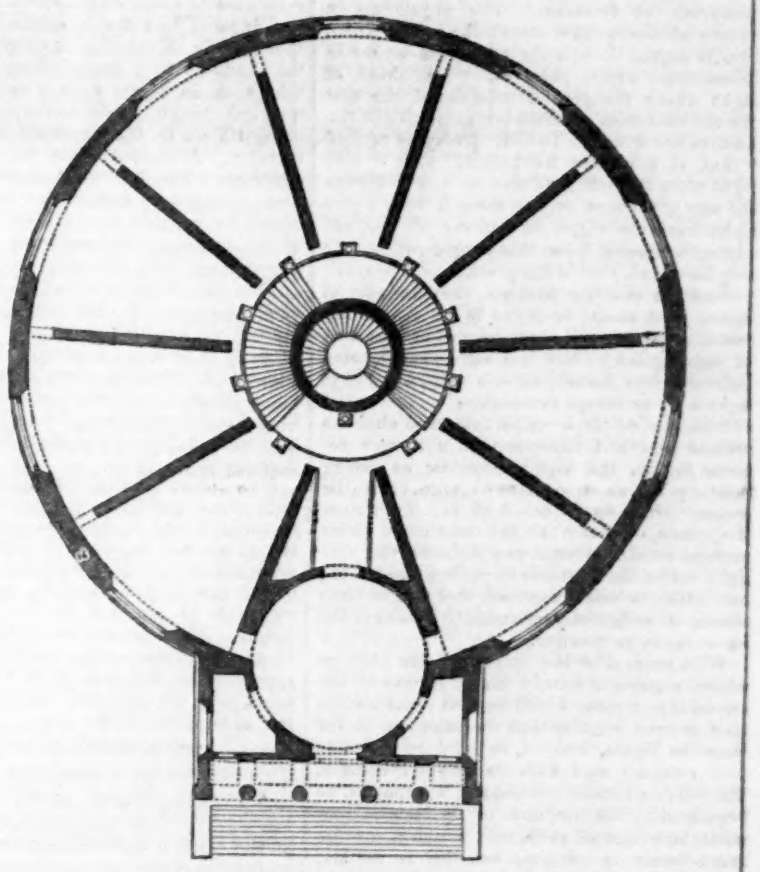


Fig. 3.

ing to efface the upper angles of the room), the greater will be the quantity of light reflected from it. In the new gallery at Munich this advantage, it appears, is more than counterbalanced, in the large rooms, by the great height of the curve itself, which has the effect of removing the source of the light too far from the pictures.

The inference which the foregoing statement seems to warrant is, that rooms of equal height are not advisable for large and small pictures; that, supposing a skylight to be the fittest on all occasions, elaborate cabinet pictures, in order to be near the eye, and, at the same time, near the light (for both conditions are essential), must be placed in less lofty rooms. This, it is admitted, might involve architectural difficulties. The problem of providing high and low skylights on the same floor (if desirable to have them on the same floor) would not be solved by adopting the form of the ancient basilica, or that of a church, in which the nave is much higher than the aisles; for the greater elevation of the central room would intercept a considerable portion of light from one wall at least of the side galleries. The diminution of light from the interruption of over-topping walls and chimneys may be seen in the National Gallery, on comparing the different sides of the principal room; that where the celebrated painting by Sebastian del Piombo hangs is always the darkest, owing to the masses of brickwork above the opposite side. It would appear needless to say that a skylight for pictures should be free and uninterrupted, but the frequent violations of this condition prove that it may be forgotten.

Supposing the rooms to be on the same floor, but of unequal height, the best mode of ensuring the uninterrupted light in the smaller galleries would be to place the latter not parallel, but at right angles, or abutting endwise against the higher building, at the same time contriving that connecting corridors (in which drawings might be placed), should have the effect of removing such smaller galleries still further from the higher neighbouring walls. If, again, the rooms should not be required to be on the same floor, there would be no difficulty whatever in ensuring a perfectly uninterrupted skylight in every case.

The well-known advantage of a skylight is, that the spectator, when near enough to inspect a picture, is not dazzled by the source of the light; the pictureis illumined, but the light itself is unseen. There is a mode in which this end can be attained in a great degree, even with a lateral light. It was proposed some years since by Professor Magnus, of Berlin, but I am not aware that it has been anywhere adopted. A paper which he published on the subject at Vienna (in November 1839), contains the plan which is here copied, Figure 2.

He supposes a room so constructed to be at least five-eighths of its breadth in height; its length to depend on the number of paintings to be placed in it; windows, reaching nearly to the ceiling and about five feet from the floor, are opened on both sides. The width of the windows, he proposes, should be a fourth of the breadth of the room, and also of the piers between them; screens are then introduced, placed at an angle of 62° with the wall, as shewn in the plan. The pictures to be placed on the screens require to be removed five or six feet from the wall; the useless space serving for doors of communication.

In such an arrangement it will be seen that the spectator must almost turn his back to the window in viewing the pictures on the screens.

This principle is, unquestionably, best adapted for a circular building, since the oblique screens would then present no archi-

tectural irregularity, but would be in their symmetrical direction as radiating from a centre. The circular design of Professor Magnus is contrived according to the annexed plan, Figure 3.

Here again he supposes the windows to reach nearly to the ceiling. The extent of the screens from the external wall towards the centre would be regulated by the light, leaving a circular space in the centre for staircases. Opposite each window a statue is supposed to be placed; other details are sufficiently explained by the plan. The same contrivance would be available for more than one story, and might be combined with the employment of a skylight in the uppermost room."

This plan Mr. Eastlake considers to be the least objectionable mode in which a side light can be employed, although fitter for modern exhibitions than for a national gallery. "Nevertheless, it is fair to state that the side light, even with the picture-walls or screens at right angles to the main walls, and without reference to a circular plan, has its advocates. The directors of the Galleries of Dresden and Berlin (Baron de Friesen and Dr. Waagen) both recommend it. It has even been adopted at Berlin and (for modern pictures) at Dresden. The arguments in favour of this opinion seem to be inconclusive. Dr. Waagen, in a letter addressed to me in November, 1840, observes, "that kind of light which the painter considered the best for the execution of his work must also be the best to see it in." To this it may be replied "that, if a picture be painted with a side light from the left (and this is nearly always the case), we have only to show it with a side light from the right, to reverse all the advantages arising from this consideration. It may be added, that in the practice of historical, portrait, or still-life painters, the necessity of lighting the model or object to be copied, advantageously, is still more important than that of lighting the picture. A somewhat elevated light displays natural objects well, but a skylight is by no means favourable."

"On the whole I see no reason to alter the opinion which I expressed on a former occasion,* viz., that the window or source of light by which a picture is seen, and the picture itself, ought not both to come within the range of vision at the same time. This general condition may comprehend the side light under the restrictions before alluded to; but it may be safely asserted, that a light from above, if sufficiently abundant, is always the fittest for large pictures.

With respect to the colour of the walls on which pictures are to be hung, it may be observed that a picture will be seen to advantage on a ground brighter than its darks and darker than its lights, and of so subdued a tint as may contrast well with its brighter colours. The choice of that tint should, I conceive, be regulated by the condition of its harmonizing with the colour of gold, with which it is more immediately in contact; but this is not all; supposing the most advantageous hue to be employed for the wall, it is not to be concluded that boards painted of that hue will have a satisfactory effect. The refined and harmonious tones of pictures, and the soft splendour of gilding around them, require to be supported by materials of corresponding richness, or at least by a certain finish, in the appearance of what surrounds them. The whole question is of less consequence where paintings are numerous enough nearly to hide the walls; but while the latter make a considerable part of the impression on the eye, that impression is not to be neglected."

We have given this portion of the letter at length, because the best arrangement of picture galleries is one of considerable interest and is still matter of dispute.

The want of room for the accommodation of artists and others copying in the National Gallery is then pointed out, and the conclusion is arrived at that a larger building is already absolutely necessary. "It is not for me to offer any suggestion as to the fittest place for such a building, but there are certain conditions which, with reference to the preservation of pictures and other requisites, should be borne in mind in selecting a locality.

The main question seems to be, whether it is desirable that a National Gallery of pictures should be in the heart of the metropolis, or in the suburbs. In the first case it is more accessible to the public at large—undoubtedly a strong point in favour of such a view. Assuming such a situation to be the fittest, it would, I consider, be expedient to provide against the injurious effect before adverted to, of a sooty atmosphere. This inconvenience, looking to the experiments of Dr. Reid, could certainly be prevented; and it appears that the means employed to prevent it would not at all interfere with the light, as the circulation of air would be independent of the windows. It is admitted that the evil in question—the accumulation of soot, would not be materially lessened (depending, as it does, on the direction of the wind) by selecting a site on the outskirts of London; and therefore the precautions recommended would still be necessary, wherever the building might be, since it could in no case be very remote. But light and ventilation, if not freedom from dust, would undoubtedly be more secured by avoiding the thickly-inhabited parts of the metropolis.

In the event of a central situation being preferred, it might be a question whether the present gallery could be enlarged, as there is considerable space on the north side. I need not inquire how far it might be possible in that case for the skill of the architect to adapt the building to a larger plan; but to combine such an object with a sufficiently symmetrical design would perhaps be scarcely compatible with the existence of the present exterior. Abundant space is, at all events, necessary; for it is most desirable that the plan, however apparently comprehensive, should be capable of extension. This is one of the fortunate circumstances attending the site of the British Museum.

This last requisite would doubtless be more easily attained by removing to the suburbs. Hyde Park has been mentioned in Parliament as a fit situation. Supposing this site to be adopted, its advantages might be combined, as far as possible, with the condition of vicinity to public thoroughfares, by selecting the immediate neighbourhood of either of the roads that bound the Park."

Mr. Eastlake terminates his excellent letter with the expression of a hope that the National Gallery, while rich in the works of the great masters, may, by degrees, merit its designation in another sense, and that a portion of the new edifice may be dedicated to the reception of *the best works of the British School*. Mr. Eastlake has already done much to advance British art; unless we are greatly mistaken, he will soon be in a position to do more, and we have no doubt will avail himself of it to the fullest extent.

* Report on the mode of lighting the Randolph Gallery at Oxford.

ELY CATHEDRAL.

A CORRESPONDENT of the *Athenæum* said last week:—"As you sometimes take notice of the repairs and improvements which our national architecture is undergoing, I thought some account of the present state of Ely Cathedral might not be unacceptable to you. When I visited Ely a year or two since, I could not help lamenting the serious dilapidations which the cathedral was daily undergoing, and the worse than useless repairs which in several places evinced a feeble attempt to arrest them. Every part of this edifice, which in splendour and extent hardly yields to any in the kingdom, has from time to time, fallen under the degraded taste of ignorant economy, and instead of repairs accomplished in the spirit of architecture, we had brickwork in the place of stonework, pointed tracery under Roman arches, and Italian doorways inserted side by side with windows filled with zig-zag mouldings, and in the vicinity of the triumphs of Alan de Walsingham. The work of restoration has at length I hope fallen into competent hands, and the present dean, whom your scientific readers will at once recognize under the more familiar name of Professor Peacock, has commenced the labour of restoring this noble edifice with a zeal to which its various interests entitle it.

When I entered the cathedral last week, I was surprised by the sound of masons, carpenters, cranes, and pulleys. In the choir a chaffern-fire was burning, tall scaffold-frames were standing near, and three or four workmen were rubbing and polishing pillars of Purbeck marble, while others were stopping the holes and gaps which had been perhaps wantonly hacked upon them? Outside the windows which light four sides of the celebrated lantern, several masons were busily engaged, and the south-western transept, where all the grandeur and solidity and variety of the Anglo-Norman architecture seems concentrated, was literally crammed with masons at their labours.

These are signs of better things. The endowments of Ely have been on a princely scale; but the conservators of its church seem to have been more than usually negligent. The puritan ordonnance commanding the destruction of images did much to despoil Ely, especially the admirable tabernacle work of its tombs and chapels, but on the whole it has perhaps suffered more from the neglect, or even the activity of its friends, than the barbarous policy of its enemies. From the western porch to the east windows it is covered with one universal coat of stone-coloured wash, if we except the six pillars of the ante-choir. These are of light-coloured Madrapore marble, and support some of the richest arch-work conceivable, all blunted and discoloured with ochrey wash. The whole of the choir has submitted to the same degradation, so that it was hardly suspected till lately that the pillars supporting the lower arches, and the slender shafts of the triforium with the foliated brackets and columns which support the groining of the roof and the string-courses dividing each story, were all of beautiful Purbeck marble. Several of the shafts have been cleaned and polished, and those dividing the lancet lights of the east window are to follow. As in most of the other works of this period the Purbeck marble has only been partially used, the rest of the work consisting of quatre and trefoil ornaments, the moulding of arches, and the principal part of the clerestory being of Ketton stone and clunch. We cannot suppose that economy dictated this partial use of marble, when we see such unsparing richness in other parts of this cathedral, but are forced to appeal to some other motive, which may perhaps be suggested in the extreme darkness of the Purbeck marble, which, while it pointed out its partial use in connection with a lighter material, seems to have prevented its adoption for entire buildings oy giving them too dark and mournful an appearance. Associated with white, or nearly white stone, it gives distinctness to that fine gothic work which is sometimes apt to be overlooked in its minuter parts; and when the degrading lime-wash, under which the sharpness and character of the choir at Ely is lost shall be removed, it may be readily conceived how admirable the colour as well as the clearness and design of this part of the cathedral will appear. The mouldings, foilage, and ribs have been so drenched by the brush and lime-pail that they appear as if they had emanated from a worn-up mould, whereas originally they must have presented the sharpest lines and finest contrasts.

Formerly the eight lancet lights that occupy the east end of the choir were filled with painted glass, which the parliamentary commands of the Commonwealth caused to be destroyed. Bishop Sparke, who died in 1838, left in his will a sum of money to be expended on their restoration, and they are to be forthwith commenced, as well as the four windows which occupy the alternate sides of the octagon. The effect of these, if properly executed, may be conceived by those who are acquainted with the purity and beauty of the architecture by which they will be accompanied. T. C.

ZINC THREAD.—The *Moniteur Industriel* announces that an important discovery in the manufacture of zinc thread has been effected by M. Boucher, who, after many essays, has at length been able to produce zinc threads of any diameter, of great suppleness, and presenting all the qualities of an excellent metal thread. In all cases where a great tension is not required, this thread can be substituted with advantage for that of iron, brass, or copper. The price of zinc has doubled during the last few years, but, notwithstanding, M. Boucher vends his thread at a lower price than the galvanic iron thread, and considerably less than brass thread.

CONTEMPLATED IMPROVEMENTS IN WHITECHAPEL AND SPITALFIELDS.

The fourth Report of the Metropolitan Improvement Commissioners has been published during the past week. It bears date the 23rd of April, 1845, and refers exclusively to the present defective communications in the locality of Whitechapel and Spitalfields.

The report states that "all the houses required for the proposed improvement in Spitalfields have been purchased and pulled down; that advantage has been taken of the present state of the ground to build, throughout the whole extent from Spitalfields Church to the Thames, a sewer of large and ample dimensions, for the drainage of that district; and that it only remains for the commissioners in whom the execution of the improvement is vested to take the customary measures for the letting of the ground, in order to make it available for all the purposes at present contemplated by the legislature.

It is alleged, however, by the local committee,* that the objects for which this improvement was originally devised and recommended to Parliament are at present but imperfectly fulfilled. They advert to the existing communications between the immediate vicinity of Spitalfields Church and Shoreditch; they allege that if the line of street already formed is to be the main channel of communication between the Docks and the north and north-western portions of London, such outlets as these would be wholly inadequate to the exigencies of its increasing traffic; and they urge that, for purposes so important to the trading and other interests of the district, its northern terminus should be at once extended to the nearest leading metropolitan thoroughfare, and thence to the great leading commercial communications of Old-street and the City-road.

From the evidence appended to the report of the Select Committee of 1840, the ultimate expediency of this extension would appear to have then suggested itself; and a plan for lines of street from Spitalfields Church to the terminus of the Eastern Counties Railway in Shoreditch, and thence to the junction of the City-road and Old-street, to have been prepared for, and discussed by that committee. The estimated net cost of the first-mentioned of these improvements was 40,209*l.*, and of the second 112,000*l.*, upon the lines of which a plan is annexed to this report.

Your Majesty's Commissioners have had before them and examined Mr. Pennethorne, by whom these estimates were prepared and submitted for the consideration of that committee. Mr. Pennethorne, as the surveyor of the Commissioners of your Majesty's Woods, is intrusted with the superintendence of the various metropolitan improvements under their direction; and having since acquired extensive experience in the valuation of property in this district, he adheres to the opinion then expressed, that the ultimate cost to the public would not exceed the sums respectively mentioned.

Upon an attentive consideration of the reports and the proceedings of the several select committees on metropolitan improvements hereinbefore referred to, and after very careful inquiries instituted on the part of this commission, your Majesty's Commissioners are of opinion that the communications in the eastern portions of the town are still exceedingly defective; that, in continuation of the improvement now in progress, the lines at present before them suggested the best and the least expensive that can be adopted; and that, ultimately, for the completion of that improvement, it may be found expedient to carry both of them into execution.

From the statements submitted to this commission by the parties whose memorials are appended to this report, your Majesty's Commissioners are also fully disposed to believe that the same lines would effect a great amelioration in the general condition of the district through which they would be carried.

But looking to the pressing circumstances more immediately suggested for their consideration, in connection with the line of street leading from Whitechapel to the front of Spitalfields Church,—to the very narrow and defective thoroughfares which at present form its northern terminus; to the near approach of the period at which it will be opened for the reception of traffic; and to the obvious disadvantages under which, both on that account and until its final character and destination be decided, the letting and appropriation of the ground throughout the whole line of this improvement must be conducted,—your Majesty's Commissioners are of opinion that the first portion of the plan suggested to the Select Committee of 1840, is that which calls for the more immediate attention of Parliament.

They recommend, therefore, that out of any moneys to be hereafter raised as a fund for metropolitan improvements, provision should be made for the completion of a line of street from Spitalfields Church to the station of the Eastern Counties Railway in Shoreditch, according to the plan and estimate referred to in this report."

* A committee of the district of the Tower Hamlets, for watching the progress of Metropolitan Improvements in that neighbourhood.

OUR KNOWLEDGE OF CURVES.

Sir,—It appears that "elementary outline," and "geometrical forms" are a part of the instruction, or should be so, of the "School of Design." This, coupled with the "general consideration of geometrical figures," and the "discussing the properties of the *oval*" by the "Decorative Art Society," noticed in "The Builder" of last week, induce me to direct attention to "the Septenary system of generating lines by simple continuous motion."

The very word "*oval*" shews clearly the want of information, and your beautiful engraving of the "Mausoleum of the Orleans Family," although made from a Daguerreotype plate, which no doubt was correct, shews us clearly that either your draughtsman, or engraver, or both, have the general incorrect idea of the representation of circles in different positions.

Much may be said, and ought to be said, *on lines*, as elementary instruction, both for design and construction. On the right line—the circle—the ellipse—the parabola and the hyperbola—the archoids—the cypoids and the cycloids. On the different characters of varying lines, without contrary flexure, as well as on those variously and beautifully inflected and waved lines, which together, are the very A B C of design, and the mine for true lines of beauty; and on the simple means by which so many of these can be so easily traced.

The necessity for knowing *practically* something more of curves is becoming more obvious, and it will be found strictly true, that geometry is the true foundation of all that is graceful in outline, and the origin of true curves and correct taste in ancient art.

The elementary principles of the septenary system for producing curved lines upon a plan are few; viz., a *point*, a *right line*, and a *circular line*, the simple elements of geometry.

When any object in nature is seen most perfectly developed, what is more common than to say, in admiration, how mathematically correct!

It must not be supposed that it is considered every artist ought to be a mathematician, as that word is more particularly understood. The equation of a curve will not give an artistical feeling to the consideration of a line; but, on the contrary, greatly increase the labour of investigation in that respect, when compared to the simple mode of knowing a curve (as you know your friend) by appearance, and by the method by which it can be traced.

The Geological Society, it appears, sprang from a small beginning,—a meeting at Dr. Babington's: and from a meeting to discuss the proportions of a few curves may arise a society for collecting information on the various characters of lines, the simple modes by which they may be traced, and their applications to designs in every department of art.

I am, Sir, &c.

Joseph Jopling.

29, Wimpole-street.

The President of the Royal Academy.—Sir Martin A. Shee, in consequence of the state of his health, has resigned the office of president of the Royal Academy.

LIST OF NEW PATENTS RELATING TO ARCHITECTURE, ENGINEERING, &c., GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-Inn Fields.

[six months for enrolment.]

Richard Prosser, of Birmingham, civil engineer, for improvements in the manufacture of metal tubes, and in the machinery and apparatus for producing the same. May 1.

Charles Attwood, of Bishop Oak, near Walsingham, Durham, esquire, for certain improvements in the manufacturing of iron. May 3.

William Radley, Laburnam-terrace, Kingsland-road, engineering chemist, for certain improvements in the production of gases, and for their application to purposes of general illumination, and in the apparatus and machinery to be employed in manufacturing, measuring, and distributing the same. May 3.

James Foreman, of Ranelagh-road, for certain improvements in the construction and manufacture of pipes and tubes applicable to locomotive purposes, and to the conveyance of water, gas, and other fluids. May 6.

Charles Wheatstone, of Conduit-street, esquire, William Fothergill Cooke, of Kidbrooke, Blackheath, esquire, for improvements in electric telegraphs, and in apparatus relating thereto, part of which improvements are applicable to other purposes. May 6.

Joseph Hill, of Ipswich, wire-worker, for improvements in the manufacturing wire fabrics for blinds and other uses. May 6.

George Duckett Barber Beaumont, of Sandy Combe Lodge, Twickenham, Middlesex, for improvements in propelling carriages. May 8.

William Prosser, jun., of Pimlico, Esq., and Jacob Brett, of Hanover-square, gent., for improvements in railways, and in propelling railway carriages. May 10.

John Mellar Chapman, of Newcastle-upon-Tyne, banker, for improvements in the manufacture of rails, and other parts of railways. May 10.

Frederick Ransome, of Ipswich, engineer, for improvements in combining small coal and other matters, and in preserving wood. May 10.

Thomas Wells, of Ware, whitesmith, for improvements in the construction of timber and other jacks and floor cramps. May 17.

Alexander Mc Dougall, of Daisey Bank, Manchester, gentleman, for certain improvements in the method of working atmospheric railways. May 17.

Louis Antoine Ritterbrandt, of Gerrard-street, doctor of medicine, for certain improvements in the application of heat to boilers for generating steam, which improvements may be also applied to other purposes where heat is required. May 17.

Henry Deacon, of Eccleston, for improvements in apparatus for grinding and smoothing plate glass, crown glass, and sheet glass. May 22.

Jeremiah Simpson, of Burslem, oven-builder, and Joshua Seddon, of the same place, earthenware manufacturer, for an improved method of constructing the flues and interior arrangements of ovens and kilns used by manufacturers of china and earthenware. May 24.

Richard Fell, of Crown-street, Finsbury, plumber, for certain improvements in the generation and application of steam, and in obtaining and applying motive power. May 24.

Julius Adolphus Detmoid, of the city of London, merchant, for improvements in the construction of metallic boats and other vessels having curved surfaces. May 24.

John Constable, of the city of London, merchant, for certain improvements in the manufacture of gas for lighting and heating. May 24.

William Prosser, jun., of Pimlico, esquire, and Jean Baptiste Carcano, of Milan, gentleman, for improvements in working atmospheric railways. May 24.

Henry Pinkus, of Great Marlborough-street, Middlesex, esquire, for improvements in obtaining and applying motive power to impelling machinery. May 24.

John Masters, of Welford, Leicester, gentleman, for certain improvements in trouser fastenings, and in attaching the same, and also in the application of an elastic material or fabric to trousers and other articles of dress. May 31.

APATHY OF GOVERNMENT AS TO LOCAL IMPROVEMENTS.

The *Westminster Review*, in an article to which we have already referred, remarks justly:—"It is yet but imperfectly understood that the test of all good government is local improvement. The spirit of British legislation is not comprehended by judging of it exclusively from the debates of the House of Commons. An intelligent foreigner visiting this country would find the data he requires less in the newspapers than in the streets. What is the true end of all social institutions but the social interest? What other meaning should have state policy, than that the people constituting the state should be well fed, well clothed, well lodged, well educated, and well protected from every calamity that human prudence can avert? A walk from Whitechapel to Westminster, and a few inquiries by the way, will explain to a stranger how far this object has been effected better than whole volumes of Hansard: and yet so little are the practical results of legislation thought of, that when two noblemen, a year or two back, accompanied Dr. Southwood Smith to Spitalfields, to see with their own eyes the state of the poor, the fact was noted at the time as a marvel, and rather as a work of supererogation on the part of lawgivers than as a branch of duty.

The reports of numerous commissions of inquiry have awakened a general expectation of extensive measures of usefulness connected with home administration; but the little that has yet been done shews to a lamentable extent how far more engrossing are questions of party conflict, and the old worn out theories of diplomacy, than any consideration of practicable benefits to the people, which might be realized by government almost without an effort.

Here are we, two millions of human beings, crowded upon a little spot five miles square, whence, as from a mighty heart, an impulse is communicated to every corner of the globe;—inhabitants of a city which, from its influence in human affairs, will be remembered when even Rome shall be forgotten; and what does this government of ours, or the statesmen composing it,—busy with the cares of an empire upon which the sun never sets,—do for *us*? Occupied with the regulations of Hong Kong, and the defence of British interests on the banks of the Columbia,—what share of the watchful vigilance of a British cabinet is enjoyed by *us*, here, on the banks of the Thames, in the streets comprising two hundred and fifty-one thousand houses round St. Paul's?

To answer the inquiry would be only to afford another illustration of the aptness of a large portion of mankind, while taking the warmest interest in the affairs of their neighbours, to forget the maxim of 'look at home.' But we doubt whether the history of the world would afford an example of the capital of a great nation more neglected in the national councils, less indebted to government aid for its growth and progress, as a place of civilized abode, than London.

In ancient times metropolitan improvement was an object for the ambition of kings. The glory of their capital was considered as their own. 'Is not this great Babylon that I have builded?' was an exclamation of pride, but of pride not unreasonably directed; and if Babylon corresponded with the description given of it by Herodotus, we may pardon the impulse of vain glory which turned the brain of Nebuchadnezzar. Egypt found in its Pharaohs,—Athens in a Pericles,—Rome in a succession of emperors,—architects and sculptors devoted to great structural works of public utility and the embellishment of their native cities; England only a George the Fourth. To no other British monarch does it appear to have occurred that great kings might be less worthily employed than in planning streets; or that if palaces and churches were worth building, their environs should be something more than a mere province of brick; and of late few persons of high influence or station appear to have troubled themselves with a thought about the matter. The royal patronage of Nash was the stimulus to which we may trace almost every improvement of importance since projected, or now being carried into effect. Regent-street, and the Regent's-park, created a taste for a better disposition of streets and buildings than had before existed, or than had then been commenced in Somers-town, and established the precedent to which we owe the entire renovation of many parts of old London, the palatial magnificence of Eaton and Belgrave-squares, the improvements on the estate of the Bishop of London, and the more varied and picturesque squares and crescents of the Kensington-park estate at Notting-hill.

Since the death of George the Fourth, Government has taken no share in the initiation of corresponding measures; but the impulse given has been sustained by the public, and in some instances reluctant consents have been wrung from chancellors of the exchequer in aid of the general movement. The apathy, however, of Government upon all questions connected with either municipal organization or structural improvement, has been shewn during the present session in the debates upon public cemeteries, the window duties, and various important suggestions of the sanitary commissions; and is exemplified by the history of the private bill now before the House for a new line of street between Westminster Abbey and the Vauxhall Bridge-road. We allude to the bill lately introduced with the sanction of the Metropolitan Improvement Commissioners; and which appears likely to be the first fruits of their three years' deliberation. This bill is only to give effect to a project *twenty years old*, and which obtained the recommendation of a committee of the House of Commons as far back as 1832. Fifty thousand pounds (for which a dozen different projectors have been quarrelling) are to be voted in aid of the line; and this is all that Government has done from that time to the present for the improvement of Westminster, south of Pall-Mall, beyond rebuilding the Houses of Parliament on perhaps the worst site that could have been found in England for a similar edifice; a mistake which has led to more money being sunk in the mud of the river to secure a foundation than would have purchased the fee-simple of the whole mass of ruinous third and fourth-rate tenements between Millbank and Buckingham Palace.

It is singular that the immediate neighbourhood of royalty should be the worst built, and the worst drained district of the metropolis, and yet, now that St. Giles's has disappeared, so it is; and streets of infamous reputation, which it is scarcely safe or prudent to traverse even in open day, form the only avenues to Westminster Abbey, from Belgrave-square and Buckingham Palace.

A Government that would tolerate the Almonry at its very doors cannot of course be otherwise than indifferent to the state of Wapping, Rotherhithe, or Spitalfields; and we need not wonder that the promise of a Thames embankment has hitherto proved illusory. In no other capital in Europe are the approaches of a noble river built up to the water's edge. To throw its banks open to the public between Blackfriars and Westminster bridges less money is required than would suffice for any one of the two hundred railroads now before Parliament; and Government cannot devise the ways and means. While perplexed with this difficulty, it can yet spend its millions to maintain the balance of power in Syria, to frighten Russia from Affghanistan, and coerce the ameers of Scinde into a respect for treaties.

At the present moment we are told that British interests require protection on the banks of the Columbia, nine month's sail from Greenwich. We complain not that such protection should be afforded, but lament that none can be spared for Greenwich itself, one of the suburbs of the metropolis. And yet what Londoner would sacrifice Greenwich Park for all the prairies in the Oregon territory, or Shooter's Hill for the whole range of the Rocky mountains? It will be happy for England when the physical and moral wants of her people shall obtain a tenth part of the attention which statesmen have hitherto bestowed upon the conquest and defence of distant and profitless dependencies. London in its most fashionable localities, west of Regent-street, gives but a faint indication of what the whole metropolis might become, and with it every town in England, if the duty of promoting public health, and of checking all abuses of local administration were made cabinet questions, in lieu of many others which absorb the time and energies of party leaders.

The imaginary difficulty of providing funds for local improvements is only an evidence of the want of earnestness in the will to provide them. The local revenue of the metropolis, derived from rates and trust estates, for public objects, is *three millions sterling!* Of these funds we believe a sixth are now wastefully or uselessly applied; but whether a sixth or sixteenth, no Government gives itself the trouble to inquire, and the existing municipal organization of the metropolis, with its innumerable vestries, boards of commissioners, perpetual churchwardens, and irresponsible trustees,—its parishes of twenty houses, and parishes of twenty thousand houses,—each parish with its separate staff, and its separate Acts of Parliament, establishing different laws in different streets,—remains to this day a scandal to the legislation of the nineteenth century."

Correspondence.

NICHES IN BRICKWORK.

SIR, — I am employed as foreman of bricklayers on a rather extensive building, where four brick niches are required to be executed in gauged work. They are to be semicircular on the plan, each three feet in diameter, and the heads are to be semicircular likewise: consequently they will form, when done, a quarter of a globe. Now, never having been called upon to execute such a work as the above, I am rather at a loss how to proceed properly with it. Perhaps some one of your numerous correspondents will be so good as to undertake to inform me, through the medium of your excellent paper, how I am to get the moulds, and the proper method of execution, so that I may be able to make a good and neat job of them. I am, Sir, &c.,

P. W.

SETTING OUT RAILWAY CURVES.

SIR,—Can any of your numerous correspondents inform me of the general method adopted in setting out a railway curve, and the rule by which the curve is found upon the ground?—and oblige, Sir,

Your obedient servant,

AMATEUR.

Miscellanea.

DISCOVERY OF A STONE COFFIN AND SKELETONS.—On Thursday week the workmen employed by Sir Wm. S. R. Cockburn, bart., and Sir Henry Rivers, in making the new road between St. Stephen's and St. Saviour's church, found a tumulus; and, beneath a domed arch, of rude but substantial masonry, there was a stone coffin, containing portions of a skeleton, and surrounded by numerous bones. This is square in form, hewn out of a solid block of sandstone, resembling that so plentifully abounding on Farleigh Down, and must have been occupied by a person of good stature, the excavation measuring five feet eleven inches, and the entire length being about seven feet. The dead was enclosed with a massive stone cover; and further security was afforded by a vaulted arched chamber, reared above the coffin, the top of which was only 18 inches beneath the surface. The workmanship of the entire sepulchre was rude, but of a massive description; the arch alone contained two waggon-loads of stone, while the weight of the coffin could not have been less than one ton. The only facts which can lead to a conjecture as to the date of interment, are the discovery of a coin lying on the top of the coffin, and of a spur which was found close to one of the adjacent skeletons. The coin has been examined by Mr. Harris, of Southgate-street, by whom it is pronounced to be the third brass coin of the Emperor Valens, A.D. 328, and U.C. 1081. It was found beneath a fragment of Roman brick, and had apparently been placed in this position as a clue to any who might in after days light upon the tomb. The coin and brick have been placed in the Museum, Terrace Walk. The entire spot apparently abounds with the decaying traces of human mortality. We are informed that no fewer than thirty skeletons, or fragments of skeletons, have been brought to light. Many of these were perhaps interred in wooden coffins; this we infer from the fact that large iron square-headed nails lay among the bones. The remains have been re-interred not far from the spot in which they were discovered.—*Bath Chronicle.*

Church Decoration.—Long before the reign of Charlemagne, the custom of painting the interior of churches was already diffused among the Gauls, and a curious passage of the poet Fortunatus* would seem even to prove that there prevailed a sort of emulation between the ultramontane and the national artists, or those of barbarian origin. The accession of Charlemagne, however, gave a fresh stimulus to the fine arts through the whole extent of his empire; the mission of inspecting the churches and the paintings made part of the attributions of the royal envoys who surveyed the provinces. Every recorded fact conspires to prove that the artists of this school, so far from being the imitators, more or less servile, of those of Byzantium or of Italy, as is sometimes asserted, had the advantage over these two countries in giving free scope to their own powers of cultivation, unencumbered with the load of old traditions which had so long impeded the progress of the ultramontane artists. Hence it is that the Byzantine and Italian productions, from the ninth to the thirteenth centuries will not sustain a comparison with the contemporary works of the Germano-Christian school, which was at once more happy in its processes, more pure in the choice of its forms, and more fruitful in invention. In short, its tendency was rather historical than mystical. For the most part, the stirring scenes of the Old Testament were preferred for representation in the decorations of manuscripts, as well as in those of churches and palaces. The synod of Arras, in 1205, had in some sort consecrated this direction, already so conformed to the national taste, by declaring that painting was the book of the ignorant who could read no other; thus the characters of this popular writing, as it may be called, were multiplied to infinity, in all dimensions and under every variety of form, insomuch that the magnificence and multiplicity of this kind of ornaments ere long induced the monks of Citeaux, in their pious simplicity, to believe it their duty to signalize as a perilous abuse the constantly increasing luxury displayed by the bishops, in rivalry of one another in decoration of the temples. About the end of the tenth century, two important discoveries were made, namely, the fabrication of tapestry for the adornment of churches, and the art of painting on glass. The glory of the last discovery entirely belongs to France; and assuredly it did not less contribute to the development of modern art, and to the majesty of Catholic worship, than to place the imagination of the Christian in a state of prayer beneath the mysterious charm of that uncertain light which is so favourable to holy contemplation.—*Dolman's Magazine.*

Prospective Reduction in the Price of Building Materials. — Mr. Charles Lindley, the owner of five stone quarries in the neighbourhood of Newark, stated last week, before the House of Commons' Committee on the London and York Railway, that Mansfield stone in London was now 31*s.* 2*d.* per ton; and the cost of it, if it were conveyed by the proposed railway, would be 24*s.* per ton, which would give a saving of 7*s.* per ton. He had no doubt but that the railway in question would be used extensively for the conveyance of stone. In his neighbourhood was to be found the best building lime in England; and that lime would, he believed, be conveyed in great quantities to Peterborough, Cambridge, Boston, London, and other places by the proposed railway, and at a greatly reduced rate as compared with the existing cost of conveyance. The price of Mansfield lime was now 30*s.* 7*d.* per ton in London; the price would be 20*s.* 10*d.* per ton if it were conveyed by the proposed London and York Railway; so that there would, in that case, be a reduction in the price of that lime in London to the amount of 9*s.* 9*d.* per ton.

Royal Institute of Architects. — At an ordinary meeting, held on the 9th instant, Mr. Kendall, V.P., in the chair, a paper was read "On Ventilation and the prevention of Smoke," illustrated by Mr. James Kite's apparatus. We shall probably print the paper at length next week. By the permission of General Monteith a series of drawings of Indian buildings was exhibited, and will be described at the next meeting.

* "Quod nullus veniens Romanâ gente fabrivit
Hoc vir barbaricâ prole peregit opus."
Lib. ii. Carm 9.

Making Clean the Outside.—They are cleansing St. Paul's of the soot and dust of many years. Washing won't serve the purpose: walls and pillars are scraped and holystoned; the church gets a "dry scrub"—like Nicholas Nickleby when the well was "froze." At this moment the façade resembles nothing so much as one of those portraits, clear carnation on one side of the face, and smirched with asphalt on the other, which dealers in paintings expose to shew how well they can "restore" pictures. Of course, the dean and chapter know too well the maxims of their own religion to rest satisfied with mere external purification; the cleansing outside is only typical of a more thorough scrubbing to be begun within. And within there is an accumulated dirtiness, of which the outside smoke and weather stains give no idea—the dirt of mammon-rusted souls. The buyers who were scourged out of the temple did not venture to make the privilege of seeing it a matter of purchase and sale. The only person on record who sought to earn something by shewing the view from the pinnacles of the temple was one whom the dean and chapter would scarcely venture to take into their service. And yet what was never done in the temple of the Jews, except by the Devil himself, is daily practised by the servants of a Christian cathedral. The dean and chapter pay their menials, as tavern-keepers do, by permitting them to levy contributions on visitors. At the threshold of St. Paul's, at every landing-place on its stairs, in every dim gallery, the luckless visitant is attacked by some extortioner in the shape of an old man or older woman. Even during the reading of prayers these semi-ecclesiastical showmen continue to gather pence in the aisles. It will be a most unchristian act in the dean and chapter to spend so much money in making clean the outside of the cathedral, if a few wheelbarrows are not hired at the same time to carry away this moral muck from the interior.—*Spectator.*

The New Royal Gardens.—We learn from the *United Gardeners' Journal* that the new royal garden at Frogmore, the formation of which was begun in the spring of 1842, is at length completed. The space within the boundary walls, which are twelve feet high, comprises an area of twenty-two acres; there is also an inner wall of the same height, distant about a hundred feet from the former, and extending round three sides of the enclosure, the north side of which, for the space of nearly a thousand feet in length, forms the site of a magnificent range of metallic forcing-houses, &c. which have been recently erected by Mr. Thomas Clark, of Birmingham. Each wing of this extensive range consists of a spacious vinery in the centre, one hundred and two feet nine inches in length, two peach-houses, each fifty-six feet eight inches long; two pineries, each fifty-three feet; and a green-house, fifty feet: the latter forms the terminus of the wing, the various divisions of which communicate with each other by means of five intervening corridors or lobbies, each of which is seven feet long. It is said that this assemblage of horticultural buildings combines every valuable improvement which has been introduced during the last half century, amongst which are contrivances for ventilation, which are at once simple and original: by the turning of a small windlass (which a mere child may do) it is said any quantity of air may be introduced, and increased or diminished at pleasure, over the whole interior surface of the buildings. The total length of the entire line of buildings, when completed, will be 936 feet, or 312 yards; an extent which, for a single range, is believed to be without a parallel in the horticultural world. Relative to the system of ventilation adopted we should be glad to hear more.

A Competition for Young Architects. —The committee of the Hull Mechanics' Institute are making extensive preparations for a grand polytechnic exhibition, to be held early in the month of August next. With a view to encourage emulation, they have offered various premiums; among them is one of "2*l.* for the best architectural drawing, plan, or elevation of a public building." All the productions sent in for competition should be original, and will be on view during the time the exhibition remains open.

On Building-rubbish as Manure.—The rubbish of clay, lime, or stones, obtained by the repairing or pulling down of old buildings, may be used to advantage as a manure, especially if derived from buildings which were tenanted by either men or cattle; because in that case it will contain saltpetre and ammoniacal salts, as these are always formed where animal putrefaction and decomposition is going on. Previous to being carried on the field it must be well mixed, broken in small pieces, and freed from large stones; it is also to be protected from much rain, which would soon extract the saltpetre and the ammoniacal salts. The amount of lime, loam, and even gypsum, which it contains constitute its value, as well as regulate the quantity which is to be brought on a certain area. At times it may be advantageous to mix the rubbish with humic earth in a compost-heap, in which case it must be well broken to pieces and sifted. A still better manure is the rubbish of burnt-down buildings; because it consists of wood-ashes, soot, much ammonia, saltpetre, lime, gypsum, roasted and burnt clay, &c. It is to be broken into small pieces, freed from wood, stones, &c., and soon used, else it would lose some of its ammonia.

St. John's College, New Zealand.—An attempt is being made to raise, by subscription, funds sufficient to erect of solid and enduring materials the fabric of St. John's College, Bishop's Auckland, New Zealand. It is estimated that, in consequence of the low price of building materials in the colony, requisite buildings of stone can be erected for 5,000*l.*, including theological college, collegiate school, native teachers (adult) school, native boys' school, infants' school (including orphan asylum), and hospital.

Oxford Architectural Society. — At the annual meeting of the Architectural Society, held last week, the Master of the University in the chair, a paper was read by Mr. Sewell, of Exeter College, on the Early Ecclesiastical Antiquities of Ireland. The report of the society was then read, from which it appears that the society is strictly resolved to confine itself to its proper duties and not suffer itself to be seduced, like a kindred society, into matters irrelevant and controversial.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For executing Works on the Leeds, Dewsbury, and Manchester Railway, being a distance of about 4½ miles. The principal work on this division is the summit Tunnel, near Morley, which is upwards of 3,000 yards in length.

For the execution of a New Harbour at Greenock.

For the supplying of certain Mines in Cornwall, for twelve months from Midsummer next, with Norway Timber, half Dram and half Longsund, of good quality and average length. The probable quantity required is 710 loads.

For building the intended Somerset County Lunatic Asylum.

For the construction of Two Divisions of the Chester and Holyhead Railway, being Nos. 8 and 12. No. 8 contains a length of 7 miles and 54 chains. No. 12 contains a length of 5 miles and 26 chains.

For the erection of a Building in London for a highly patronised purpose, at the estimated cost of about 30,000*l.*

For supplying from 3,000 to 4,000 cubic yards of Broken Guernsey Granite or other hard stone, for the repair of the Roads of Regent Street, Whitehall, &c., and for 1,500 yards of the same material for the repair of the Albany Road, &c.

For the erection of a Governor's House, and alterations of the Chapel, at the Worcester County Gaol.

For supplying the St. Marylebone Vestry, with materials for keeping the Foot-way and Carriage-way in order.

For the several works contingent on Warming and Ventilating the Chester Castle County Gaol.

For excavating and levelling Land, building Sewers, making a new Road, &c., on the Wheatley Estate, Erith, Kent.

For Bricklayers', Carpenters', Smiths', Plumbers', Painters' and Glaizers' Works, required to be done for one year, from the 24th inst., at the Churches, Chapels, Court-house, &c., of the Parish of St. Marylebone.

For lowering and making certain Improvements at the Yeuston Hill, Henstridge, Somerset.

For laying down a short Line of Railway, upon Pilbrow's Atmospheric principle, and for two Cornish Engines.

For Building Sewers in Bartholomew-close and Carthusian Street, within the City of London.

For erecting New Buildings and repairing others, on the farms belonging to the Trustees of the Denston Estate, at Wickhambrook, near Newmarket, Suffolk.

For Plumbers' and Glaziers' Works, at the Hackney Union Workhouse, for one year, from the 24th inst.

For Building a New Parsonage House, at Castle Cary, Somerset.

For Building a Poor Girls School, Mistress's House and Offices, in Wells Street and Short Brackland, Bury St. Edmunds.

COMPETITIONS.

Designs for houses to be erected at Dover. The ground is nearly seven acres in extent, and lies on a gentle slope between the south-west boundary of Dover Castle and the town. A premium of fifty guineas is offered for the set that may be most approved of.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

The timber and other trees now standing upon the estate at Woodseaves, Salop. By order of the Lord Chancellor made in the cause "Dickin *v.* Barker."

At Letts' Wharf, Commercial Road, Lambeth; 150 Loads of Oak Timber, 20 Loads of Oak Scanting and Plank, 40 Loads of Elm Timber and Boards, &c.

At the Sussex Arms, Brandon, near Coventry; several thousand prime Oak Trees, and a quantity of Planks and Quarterings.

At Brandon, near Coventry: several Thousand prime Oak Trees, and a quantity of Planks and Quarterings.

BY TENDER.

A Virgin Forest of Valuable Timber in Walachia. The principal part of the Trees is Oak. The said Forest may produce about 500,000 cubic feet of Timber.

At Little Bentley Hall, Essex: several Acres of Plantations, consisting of superior Firs, Larch, Spruce, &c., to be taken down by the Purchaser.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing week.

MONDAY, June 16. — *Statistical*, 11, Regent-street, 8 P.M.; *United Service Institution*, Whitehall-yard, 9 P.M.

TUESDAY, 17.—*Linnæan*, Soho-square, 8 P.M.; *Civil Engineers*, 25, Great George-street, 8 P.M.

WEDNESDAY, 18.—*Microscopical*, 21, Regent-street, 8 P.M.; *Ethnological*, 27A, Sackville-street, 8 P.M.

THURSDAY, 19. — *Royal*, Somerset-house, 8½ P.M.; *Antiquaries*, Somerset-house, 8 P.M.; *Numismatic*, Somerset-house, 7 P.M. (anniversary).

SATURDAY, 21. — *Asiatic*, 14, Grafton-street,

TO CORRESPONDENTS.

"W. Ray" *is wrong in considering that the Metropolitan Improvement Society no longer exists; the office of the society is in Bedford-street, Covent Garden.*

"J. F."—*We shall be glad to see one of the papers of which our correspondent speaks. It shall be safely returned if unsuitable.*

"Suggester."—*The site of the Fleet Prison is not considered large enough for the proposed new Compter. See report of Committee in* Times *of* 11*th inst.*

"J. K."—*We have received our obliging correspondent's paper, and will give it early attention.*

"C. M. J."—*Shall appear next week.*

"Abram L." *differs from our correspondent Col. Mason, and directs attention to the brickwork in Leeds, which he says is universally excellent, and "truly beautiful."*

"A Church for Postage Stamps."—*In reference to a paragraph under the head of* "Absurdity," *which appeared in* "THE BUILDER" *a fortnight since, a correspondent offers* 5*l. worth of postage stamps as his contribution, if the statement be really true.*

"Westminster Improvements."—*A correspondent who expresses himself very strongly against the injudicious proposal to build out of view Westminster Abbey, and prevent its isolation for many years, has forwarded to us a petition proposed to be presented to the House of Commons. It lies at* "THE BUILDER" *office for signatures.*

"T. J. M."—*We shall probably print his letter next week, notwithstanding his request.*

"Iron Cement."—*A correspondent wishes to know how to form the best and most durable iron cement for joints.*

"H. J.'s" *inquiry has not escaped us; it will be answered in an article next week.*

"W. H." *came too late for consideration this week.*

"H. F." *query* "F. H."—*We are obliged to our old friend for his suggestions, and will give them due consideration.*

"Window Cleaning."—"W. C." *thinks the bowl of hot water would be found troublesome, and recommends the use of the wash-leather, and disuse of whiting. After washing the window, the leather must be squeezed nearly dry, and used for polishing the glass.*

"Mr. D." (Mornington Place).—*We shall be glad to see some of the subjects mentioned, and to know what arrangement is desired.*

Received: "*A Mason.*"—"*A Bricklayer.*"—"*G. Wood.*"

*** *We are unavoidably compelled to postpone "Geometry of Brickwork," "History of Art by its Monuments," "School of Design,"* (Constant Reader), *and several other articles, for which the respective writers must pardon us.*

ADVERTISEMENTS.

ATMOSPHERIC RAILWAY, Daily at Work, carrying visiters, at the ROYAL POLYTECHNIC INSTITUTION. This interesting Model is lectured on by Professor Bachhoffner at One o'clock daily; also on the evenings of Wednesdays and Fridays at Eight o'clock, and on the evenings of Mondays, Tuesdays, and Thursdays at Nine o'clock. The working of the Model always follows the Lecture. It is also worked at Four o'clock, and at other convenient times. The other interesting Works and popular Lectures as usual.

Admission, 1s.; Schools, half-price.

BED FEATHERS.—DUTY FREE.—HEAL and SON have reduced the price of Foreign Feathers the amount of the duty, and they can now offer—

Best White Dantsic	2s. 10d.	Best Foreign Greys	2s. 0d.
Irish White Goose	2s. 0d.	Irish Grey Goose..	1s. 6d.
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HIP TILES to suit slate roofs in colour; Ridges, with plain or rebated joints, roll tops, and vertical ornaments; drains, many sizes, with plain or socket joints; paving in squares, hexagons, octagons, &c., different colours; roofing, in Grecian or Italian styles, other devices also, or plain; conduits, which do not injure pure water; fire-bricks and tiles; clinkers, and out-door paving; sundry wall-coping, garden-borders, chimney-tops; also tubular and other flues of peculiar material. No agent, but a depôt at 22, WHITEFRIARS-STREET, FLEET-STREET, LONDON, under Mr. PEAKE'S personal care, to supply genuine TERRO-METALLIC goods at fair prices as per quality; also, additional Stock at No. 4 Wharf, Macclesfield-street, South, City Basin.

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Linseed Oil, 2s. 4d. per gallon.	Yellow Oker Powder, 6s. and 8s. per cwt.
Boiled ditto, 2s. 10d. ditto.	Fine Powdered Oxford Oker, 21s. and 28s. ditto.
Turpentine, 3s. 3d. ditto.	Ditto, ditto, in Oil, 36s. and 42s. ditto.
Turpentine Varnish, 3s. ditto.	Crome Yellow, 6d., 10d., and 1s. 4d. per lb.
Paper Varnish, 12s. and 16s. ditto.	Spanish Brown, 6s. per cwt.
Gold Size, 8s. ditto.	Stockholm Tar, 19s. per barrel.
Best ground White Lead, 26s. per cwt.	Gas Tar, 9s. ditto.
Second ditto, 23s. ditto.	Lamp Black, 20s. per cwt.
Third ditto, 20s. ditto.	Glue, 42s. and 48s. ditto.
Putty, 6s. 6d. ditto.	Green Copperas, 6s. per cwt.
Patent Driers, 42s. per cwt.	
English Umber, 8s. ditto.	

And every description of dry and ground Colours, Varnishes, &c. CROWN GLASS, price as at the Manufactory; BRUSHES, at Makers' prices.

The Anti-corrosion Paint for every description of outside work, resisting all kinds of damp, and it never blisters or peels off; it has now stood the test for the last sixty years, and has been used by the Government in most of the Colonies and Dock-yards, having received the approbation of the Hon. Board of Ordnance, and other public bodies, at the LONDON COLOUR, LEAD, GLASS, OIL, and VARNISH WAREHOUSE, 27, Coleman-street, City.

*** Country Orders must be accompanied with a remittance, or reference for Payment in London.

TO BUILDERS AND OTHERS requiring Scantling, Quartering Deals, Battens, Sawn Lathing, will find a large quantity for Sale at CLEMENT'S YARD, Horse-ferry Branch-road, Commercial-road East.—If by letter, to Mr. HARTLEY, 13, York-terrace, Commercial-road. Scantling from 1d. per foot.

BATH STONE.
T. E. WELLER, of STEEL-YARD WHARF (late Drewe's), begs to inform Stone Merchants, Contractors, &c., that he can supply them with best FARLEIGH-DOWN STONE on lower terms than ever before offered.—Depôt for immediate supplies, DRUCE'S WHARF, Chelsea.

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HAWORTH and Co. beg to represent to Builders, Engineers, and the public generally, that, having made considerable improvements and additions to their Premises, and conducting their business on economical principles, they are enabled to offer CASTINGS of every description at least 10 per cent. below the price of any other house in town. Brass Castings, Builders' Smith-work, Forgings of every description; Palisading, Railing-fronts, Balcony-railing, Verandahs, Bell-hanging, and all other iron-work, executed with the greatest despatch, and at exceedingly low prices.

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DOOR SPRINGS AND HINGES.—GERISH'S PATENT DOOR SPRINGS, for CLOSING every description of DOOR, consists of Single and DOUBLE-ACTION BUTT HINGES in Brass and Iron for Doors to open one or both ways, and Rising Hinges for the convenience of Doors opening on uneven Floors. Likewise Swing-Centres, which consist of a combination of power unequalled by any made at present. Manufactured by F. W. Gerish, East-road, City-road; and sold by all respectable Ironmongers in the United Kingdom.

TO ARCHITECTS, ENGINEERS, BUILDERS, AND OTHERS.
A HANDSOME DOUCEUR, or a Regular Commission, will be allowed by the advertiser to any gentleman connected with either private or public works, who would recommend business, contracts, or jobs to an old, extensive, and highly respectable factory in London, capable of executing engineering works to any extent consisting in brass or iron, and machinery of every description; the utmost secrecy may be relied on.—Apply to D. G., care of W. THOMAS, British and Foreign Advertising Agent, 21, Catherine-street, Strand.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10s. per gallon; best White Spirit Varnish, 21s. ditto; Best Spirit French Polish, 20s. ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

WALLIS'S PATENT LIQUID WOOD KNOTTING. — This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

TO ENGINEERS, ARCHITECTS, AND BUILDERS.
PATENT METALLIC SAND CEMENT.—The Metallic Sand, from its chemical qualities, forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar, specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.

Further information will be given, and specimens shewn, on application to Mr. C. K. Dyer, 4, New Broad-street; and at the Metallic Cement Wharf, King's-road, opposite Pratt-street, Camden New Town.